PFAFF® Industrial

POWERLine

# 2571 ME PREMIUM
# 2574 ME PREMIUM

SERVICE MANUAL

# 2591 ME PREMIUM

This service manual applies to machines from software version **0389/001** and serial number **2 766 760** onwards →

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und Maschinen AG

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Contents ..... Page


| | | |
|---|---|---|
| **1** | **Adjustment** | **5** |
| 1.01 | Notes on adjustment | 5 |
| 1.02 | Tools, gauges and other accessories for adjusting | 5 |
| 1.03 | Abbreviations | 5 |
| 1.04 | Explanation of the symbols | 5 |
| 1.05 | Adjusting the basic machine | 6 |
| 1.05.01 | Basic position of the balance wheel (adjustment aid) | 6 |
| 1.05.02 | Balance weight | 7 |
| 1.05.03 | Needle position in the direction of sewing (on the 2571 ME and 2591 ME) | 8 |
| 1.05.04 | Needle position in the direction of sewing (on the 2574 ME) | 9 |
| 1.05.05 | Limiting the needle bar frame (Not applicable for PFAFF 2574 ME.) | 10 |
| 1.05.06 | Preliminary adjustment of the needle height | 11 |
| 1.05.07 | Needle rise, hook clearance, needle height and needle guard (on the PFAFF 2571 ME) | 12 |
| 1.05.08 | Needle rise, hook clearance, needle height and needle guard (on the PFAFF 2574 ME ) | 14 |
| 1.05.09 | Needle rise, Gripper distance, Needle height and Needle guard (on the PFAFF 2591 ME) | 16 |
| 1.05.10 | Needle position crosswise to sewing direction (on the PFAFF 2571 ME) | 18 |
| 1.05.11 | Needle position crosswise to sewing direction (on the PFAFF 2574) | 19 |
| 1.05.12 | Needle position crosswise to sewing direction (on the PFAFF 2591 ME) | 20 |
| 1.05.13 | Height and stroke of the bobbin case opener | 21 |
| 1.05.14 | Height of the feed wheel (on the 2571 ME) | 22 |
| 1.05.15 | Height of the feed wheel (on the 2574) | 23 |
| 1.05.16 | Height of the feed wheel (on the 2591) | 24 |
| 1.05.17 | Roller-presser | 25 |
| 1.05.18 | Clearance between roller presser and feed wheel | 26 |
| 1.05.19 | Knee lever | 27 |
| 1.05.20 | Tension release | 28 |
| 1.05.21 | Thread check spring and thread regulator | 29 |
| 1.05.22 | Bobbin winder | 30 |
| 1.05.23 | Sewing foot pressure | 31 |
| 1.05.24 | Lubrication | 32 |
| 1.05.25 | Re-engaging the slip-clutch | 33 |
| 1.06 | Adjusting the edge trimmer -725/04 | 34 |
| 1.06.01 | Position of the knife holder on model 2571 | 34 |
| 1.06.02 | Position of the knife holder on model 2591 | 35 |
| 1.06.03 | Knife stroke on model 2571 ME | 36 |
| 1.06.04 | Knife stroke on model 2591 ME | 37 |
| 1.06.05 | Cutting stroke on model 2571 ME | 38 |
| 1.06.06 | Cutting stroke on model 2591 ME | 39 |
| 1.06.07 | Knife position | 40 |

Contents ..... Page


| | | |
|---|---|---|
| 1.07 | Adjusting the thread trimmer -900/81 | 41 |
| 1.07.01 | Resting position of the roller lever / radial position of the control cam | 41 |
| 1.07.02 | Position of the thread catcher holder | 42 |
| 1.07.03 | Distance between thread catcher and needle plate | 43 |
| 1.07.04 | Position of the thread catcher | 44 |
| 1.07.05 | Knife position and knife pressure | 45 |
| 1.07.06 | Bobbin thread retaining spring | 46 |
| 1.07.07 | Manual cutting test | 47 |
| 1.07.08 | Linkage rod (only for the PFAFF 2574 ME) | 48 |
| 1.08 | List of parameters for control P320 / P321 | 49 |
| 1.09 | Error Messages and Description | 54 |
| 1.10 | Motor Errors | 55 |
| 1.11 | Updating the machine software via internet | 56 |
| 1.11.01 | Updating with null modem cable | 56 |
| 1.11.02 | Updating with SD card | 57 |
| 2 | Circuit diagrams | 59 |

# 1 Adjustment

Please observe all notes from Chapter **1 Safety** of the instruction manual!
In particular care must be taken to see that all protective devices are refitted properly after adjustment, see Chapter **1.06 Danger warnings** of the instruction manual!

If not otherwise stated, the machine must be disconnected from the electrical power supply. Danger of injury due to unintentional starting of the machine!

## 1.01 Notes on adjustment

All following adjustments are based on a fully assembled machine and may only be carried out by expert staff trained for this purpose.
Machine covers, which have to be removed and replaced to carry out checks and adjustments, are not mentioned in the text.
The order of the following chapters corresponds to the most logical work sequence for machines which have to be completely adjusted. If only specific individual work steps are carried out, both the preceding and following chapters must be observed.
Screws, nuts indicated in brackets ( ) are fastenings for machine parts, which must be loosened before adjustment and tightened again afterwards.

## 1.02 Tools, gauges and other accessories for adjusting

- Screwdrivers with blade width from **2** to **10 mm**
- Spanners (wrenches) with jaw width from **7** to **14 mm**
- **1** set Allen keys from **1.5** to **6 mm**
- Setting gauge (Needle position in sewing direction Order No. **61-111 641-48**)
- Step gauge
- Metal rule (part No. **08-880 218-00**)
- Sewing thread and test materials

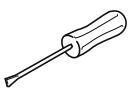
## 1.03 Abbreviations

t.d.c. = top dead centre
b.d.c. = bottom dead centre

## 1.04 Explanation of the symbols

In this adjustment manual, symbols emphasize operations to be carried out or important information. The symbols used have the following meaning:

Note, information



Service, repair, adjustment, maintenance
(work to be carried out by qualified staff only)

## 1.05 Adjusting the basic machine

### 1.05.01 Basic position of the balance wheel (adjustment aid)

**Requirement**
When the needle bar is positioned at t.d.c., the marking "**0**" on the scale should be level with the top edge of the belt guard (see arrow).

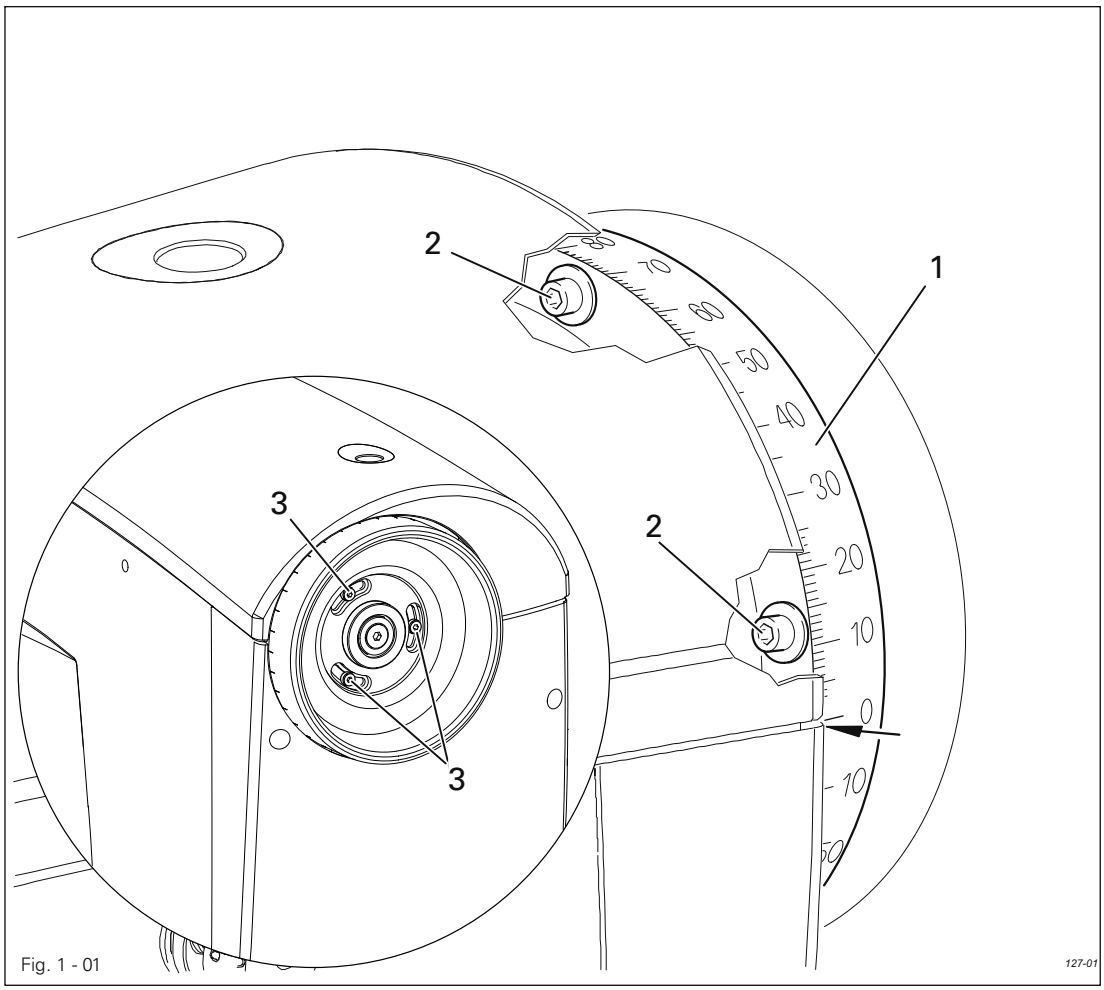
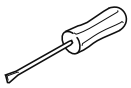


Fig. 1 - 01



- Adjust the scale dial **1** ( depending on model screws **2** or **3** ) in accordance with the requirement.

## 1.05.02 Balance weight

**Requirement**
When the needle bar is positioned at b.d.c. (balance wheel position **180**°) the largest eccentricity of the balance weight **1** should be at the top.

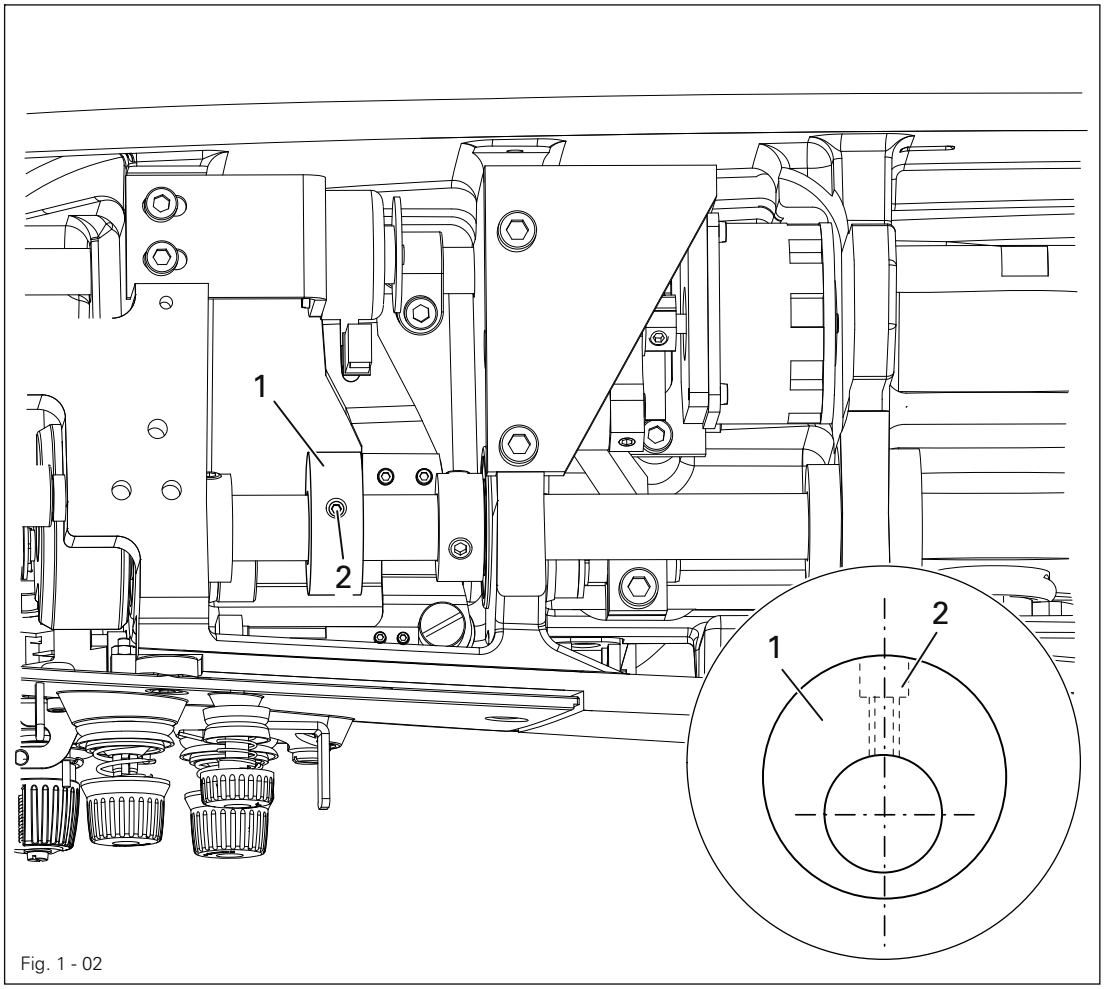
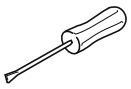



Fig. 1 - 02



- Adjust balance weight **1** (screw **2**) in accordance with the **requirement**.

## 1.05.03 Needle position in the direction of sewing (on the 2571 ME and 2591 ME)

**Requirement**
With the stitch length set at "5", in its front and rear point of reversal the needle should be the same distance from the inside edges of the needle hole.

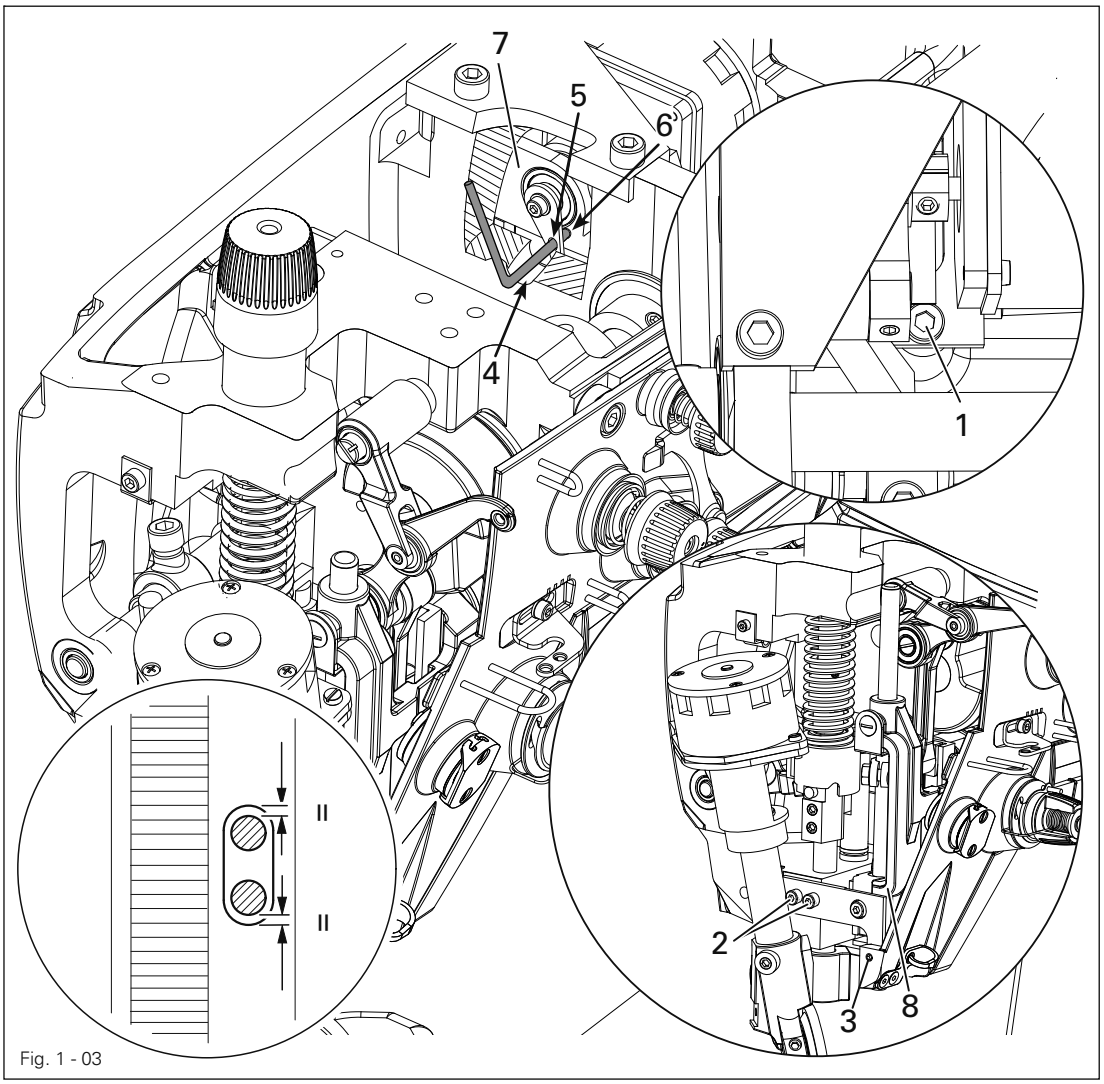
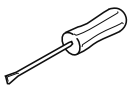


Fig. 1 - 03



- Turn on machine and set stitch length to "5".
- Turn machine off and on (synchronise needle bar to stitch length).
- Sew a stitch and check the rear position of the needle according to the requirement.
- Press the stitch control key, sew a stitch and check the forward position of the needle according to the requirement and where necessary make the following adjustments.
- Turn off machine and loosen screws 1, 2 and 3.
- Push the adjusting pin's angled part (Order No. 61-111Snnb641-48 through hole 4 and 5 into the hole 6 of the bearing block 7.
- Move the needle bar frame 8 according to the requirement and tighten screw 1.
- Check according to the requirement.
- Screws 2 and 3 remain loosened for the subsequent adjustment.

## 1.05.04 Needle position in the direction of sewing (on the 2574 ME)

**Requirement**
The needle must penetrate the middle of the needle hole as viewed in the direction of sewing.

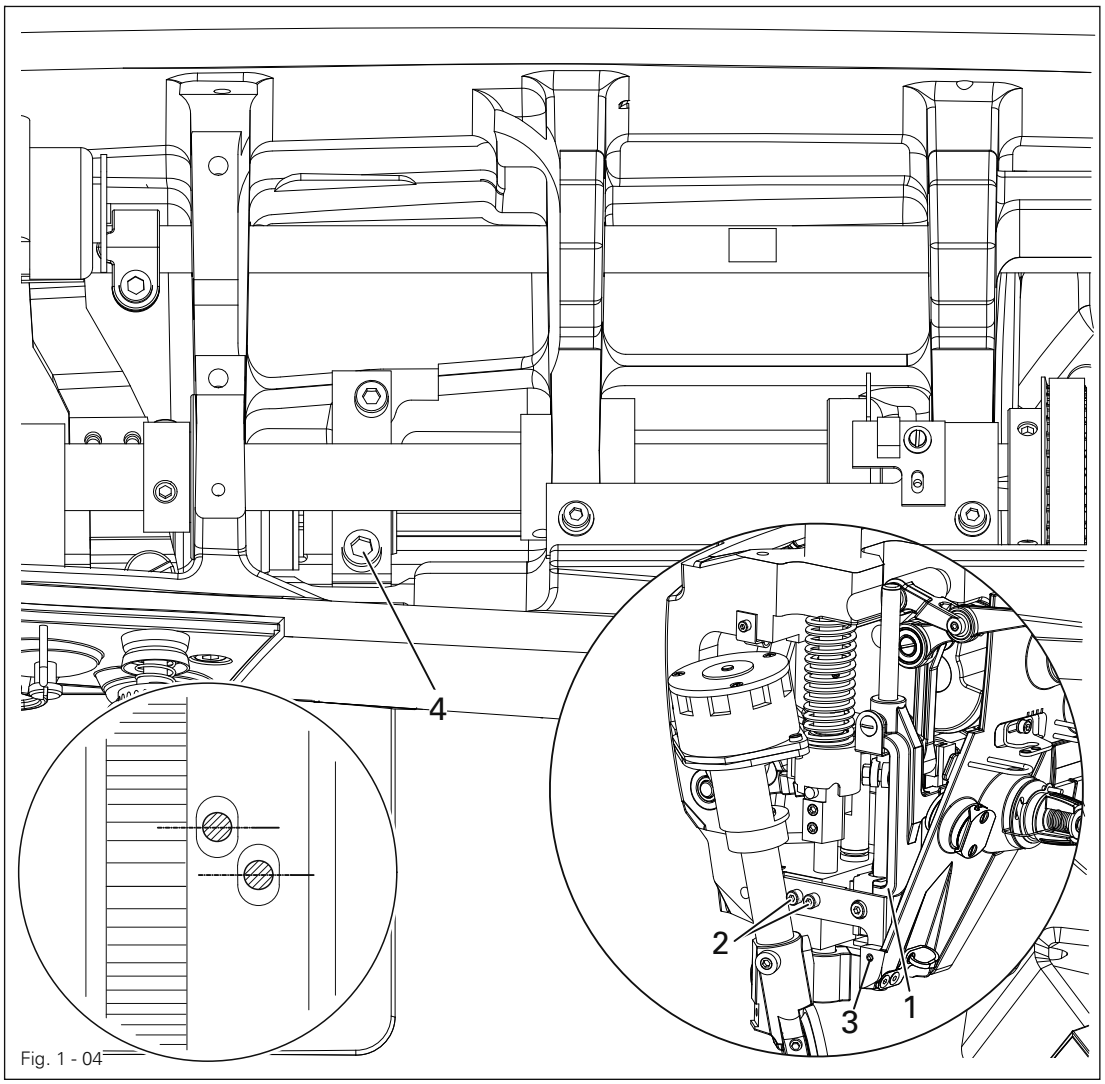


Fig. 1 - 04

- Move the needle bar frame **1** ( screws **2**, **3** and **4** ) in accordance with the requirement.

## 1.05.05 Limiting the needle bar frame (Not applicable for PFAFF 2574 ME.)

**Requirement**
With the stitch length set at "**5**", when the needle is in its front and rear point of reversal screw **4** should be the same distance from the inside edge of its hole.

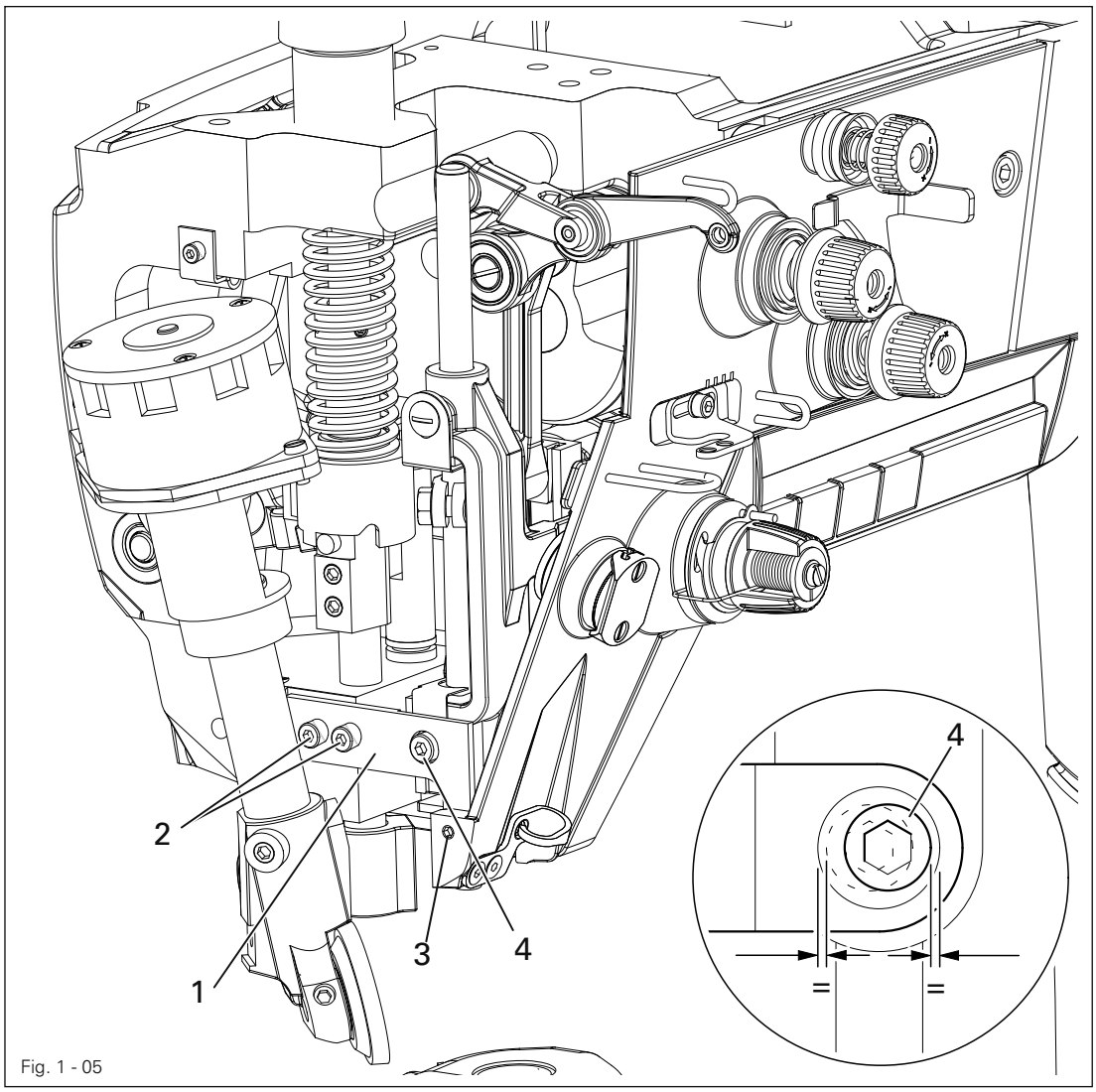
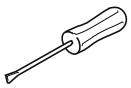



Fig. 1 - 05



- Set stitch length to "**5**".
- Select parameter **605**.
- Turn the handwheel in the direction of rotation and check the "requirement".
- If necessary move regulating bow **1** (screw **2** and **3**).

## 1.05.06 Preliminary adjustment of the needle height

**Requirement**
When the needle bar is positioned at t.d.c. (handwheel position **0**°) there should be a gap between upper edge needle bar and upper edge needle pendulum of about **54 mm (2571/91) or 58 mm. (2574)**

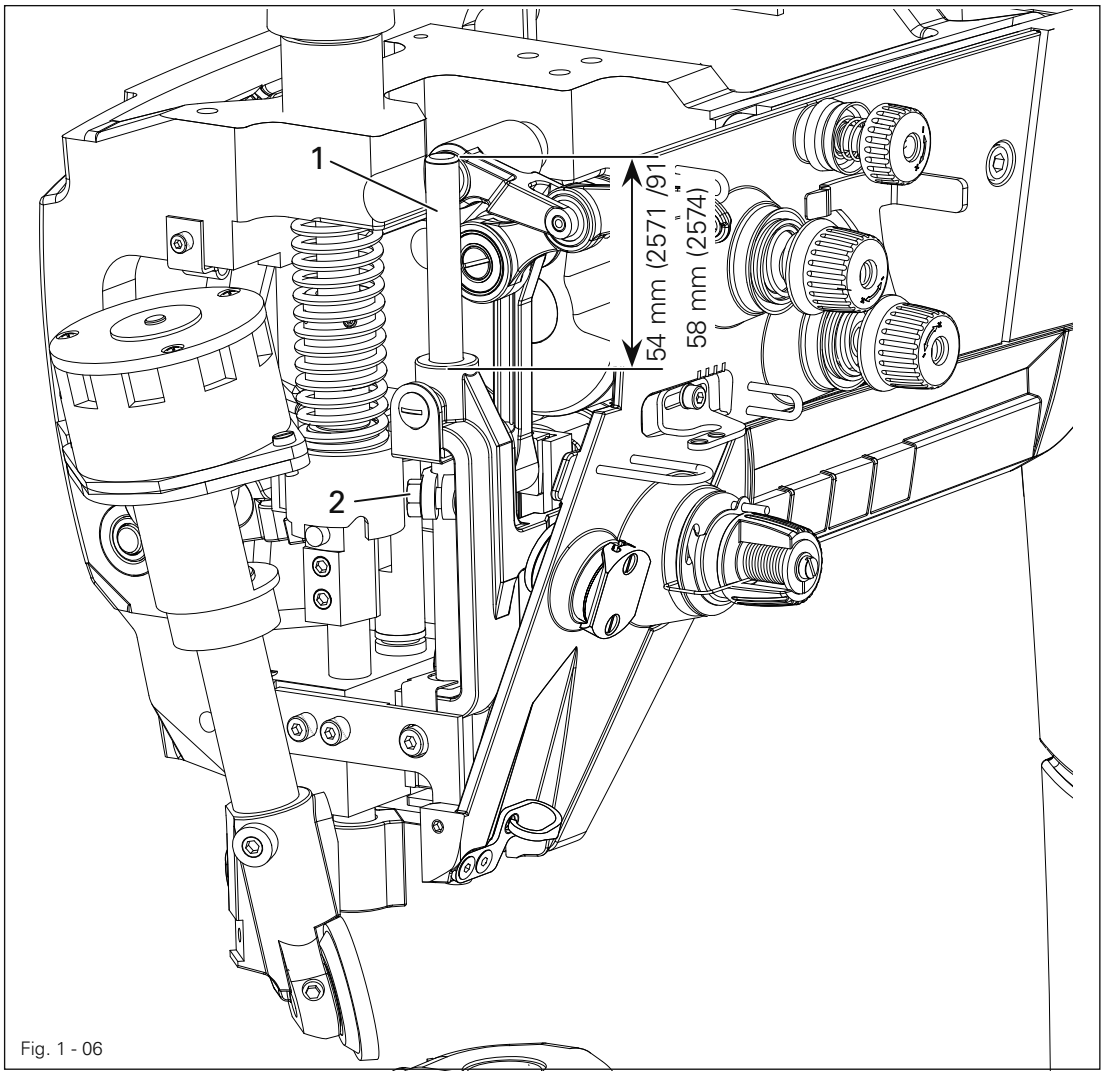



Fig. 1 - 06

- Without turning it, re-position needle bar **1** (screw **2**) in accordance with the **requirement**.

## 1.05.07 Needle rise, hook clearance, needle height and needle guard (on the PFAFF 2571 ME)

**Requirement**

With the needle bar positioned **2.0 mm** after BDC (balance wheel position **202°)** and the stitch length set at "**0.8**"

1. the hook point must be at needle centre with a hook-to-needle clearance of **0.05** to **0.1 mm**;
2. the top of the needle eye must be **0.8** to **1.0 mm** below the hook point;
3. the needle guard **7** must touch the needle lightly.

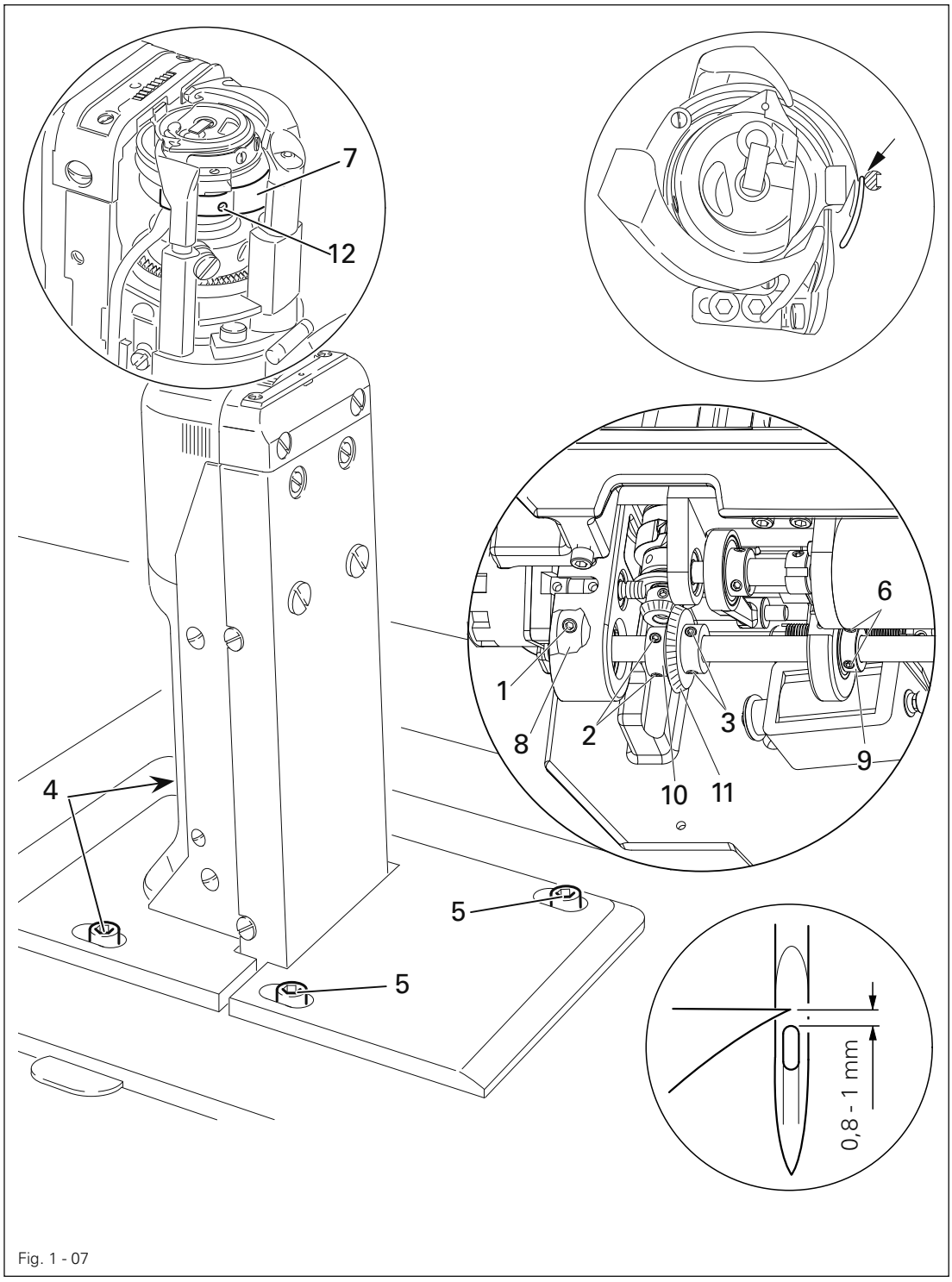
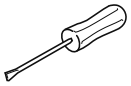
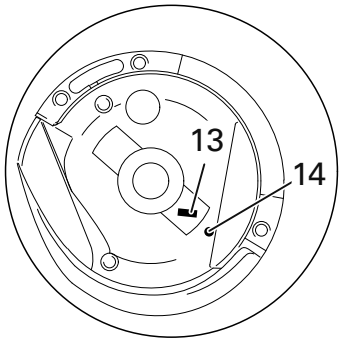



Fig. 1 - 07



- Set stitch length at "0.8".
- Loosen screws 1, 2, 3, 4 and 5 .
- Select parameter 605.
- Unscrew the needle plate.
- Turn the handwheel four times in the direction of rotation.
- Bring the handwheel into position 202° (= needle bar position 2.0mm after b.d.c.)
- Set the hook point on the middle of the needle. Take care that the needle is not squeezed by needle guard 7.
- Adjust the needle height according to requirement 2, cf. chapter 1.05.05 Preliminary Adjustment of Needle Height.
- Move hook post according to requirement 1 and tighten screws 4 and 5.
- Move collar 8 into contact and tighten screw 1.
- Move collar 9 into contact and tighten screw 6
- Tighten screws 3 allowing for bevel gear wheel movement.
- Move collar 10 up against bevel gear wheel 11 and tighten screws 2
- Adjust needle guard 7 (screw 12) according to rule 3.




When changing a clamp take care that the markings 13 and 14 are on one side.

1.05.08 Needle rise, hook clearance, needle height and needle guard (on the PFAFF 2574 ME )

Requirement

With the needle bar positioned **2.0 mm** after BDC on both hook (balance wheel position **202°)** and the stitch length set at "**0.8**"

1. the hook point must be at needle centre with a hook-to-needle clearance of **0.05** to **0.1 mm**;
2. the top of the needle eye must be **0.8** to **1.0 mm** below the hook point;
3. the needle guard **9** must touch the needle lightly.

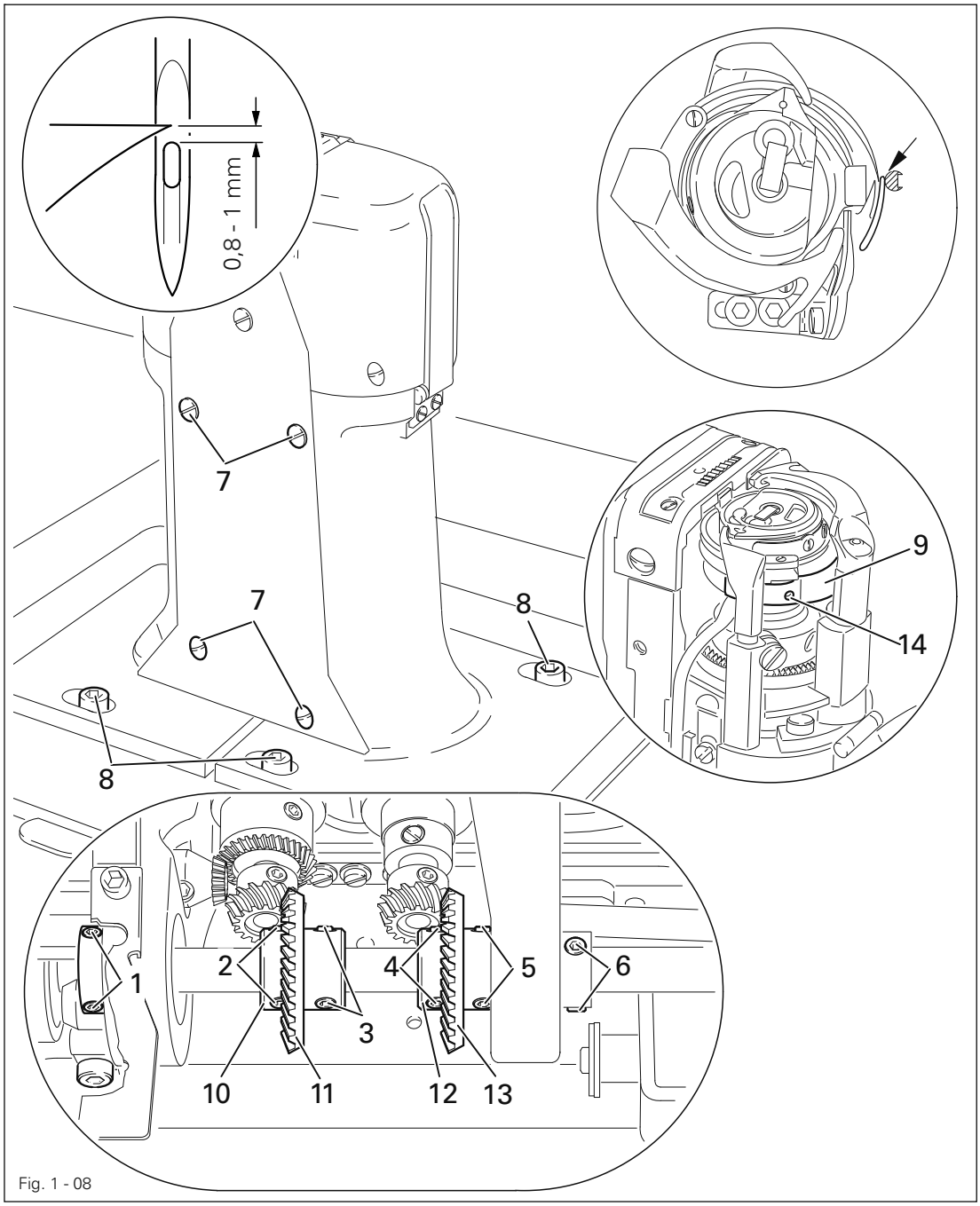
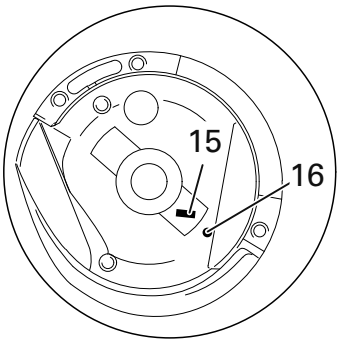



Fig. 1 - 08

- Loosen screws **1**, **2**, **3**, **4**, **5**, **6** and **7**.
- Loosen screws **8** slightly.
- Select parameter **605**.

- Unscrew the needle plate.
- Turn the handwheel four times in the direction of rotation.
- Bring the handwheel into position 202° (= needle bar position 2.0mm after b.d.c.)
- Set both hook points to the centre of the needle, taking care to see that the needles are not deflected by needle guard 9.
- Set the needle height in accordance with requirement 2, compare Chapter 1.05.05 Pre-adjusting the needle height.
- Adjust both hook posts in accordance with requirement 1 and tighten screws 8.
- Tighten screws 1 and 6.
- Taking the play of the bevel gear into consideration, tighten screws 3 and 5.
- Move adjustment ring 10 against bevel gear 12 and tighten screws 2.
- Move adjustment ring 12 against bevel gear 13 and tighten screws 4.
- Tighten screws 7 on both sides of the post.
- Adjust needle guard 9 (screw 14) on both hooks in accordance with requirement 3.




When the hook is changed, make sure that markings 15 and 16 are on one side.

## 1.05.09 Needle rise, Gripper distance, Needle height and Needle guard (on the PFAFF 2591 ME)

**Requirement**

With the needle bar positioned **2.0 mm** after BDC (balance wheel position **202°)** and the stitch length set at "**0.8**"

1. the hook point must be at needle centre with a hook-to-needle clearance of **0.05** to **0.1 mm**;
2. the top of the needle eye must be **0.8** to **1.0 mm** below the hook point;
3. the needle guard **6** must touch the needle lightly.

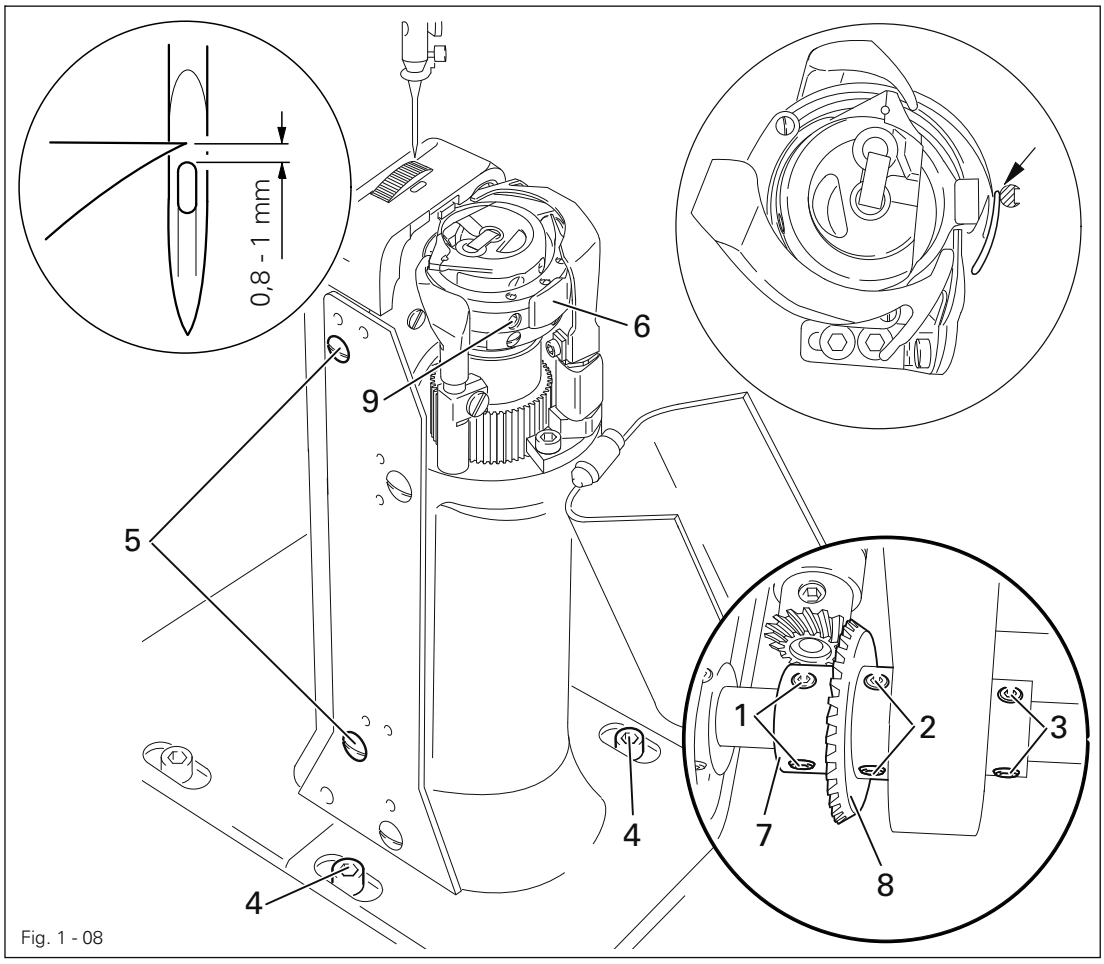
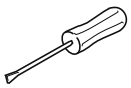
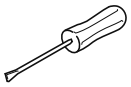


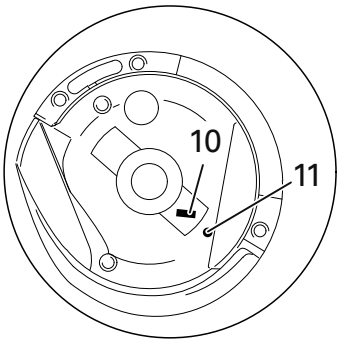

Fig. 1 - 08



- Set stitch length at "**0.8**".
- Loosen screws **1**, **2**, **3**, and **4** as well as screw **5** on both sides of the post.
- Select parameter **605**.
- Unscrew the needle plate.
- Turn the handwheel four times in the direction of rotation.
- Bring the handwheel into position **202°** (= needle bar position **2.0mm** after b.d.c.)
- Set the hook point on the middle of the needle. Take care that the needle is not squeezed by needle guard **6**.
- Adjust the needle height according to requirement **2**, cf. chapter **1.05.05** Preliminary Adjustment of Needle Height.
- Move hook post according to requirement **1** and tighten screws **4**.



- Tighten screws 2 allowing for bevel gear wheel movement.
- Move collar 7 up against bevel gear wheel 8 and tighten screws 1.
- Screws 5 remain loosened for further adjustments.
- Adjust needle guard 6 (screw 9) according to requirement 3.




When changing a clamp take care that the markings 10 and 11 are on one side.

## 1.05.10 Needle position crosswise to sewing direction (on the PFAFF 2571 ME)

**Requirement**
As seen crosswise to the sewing direction, the needle must penetrate in the centre of the needle hole.

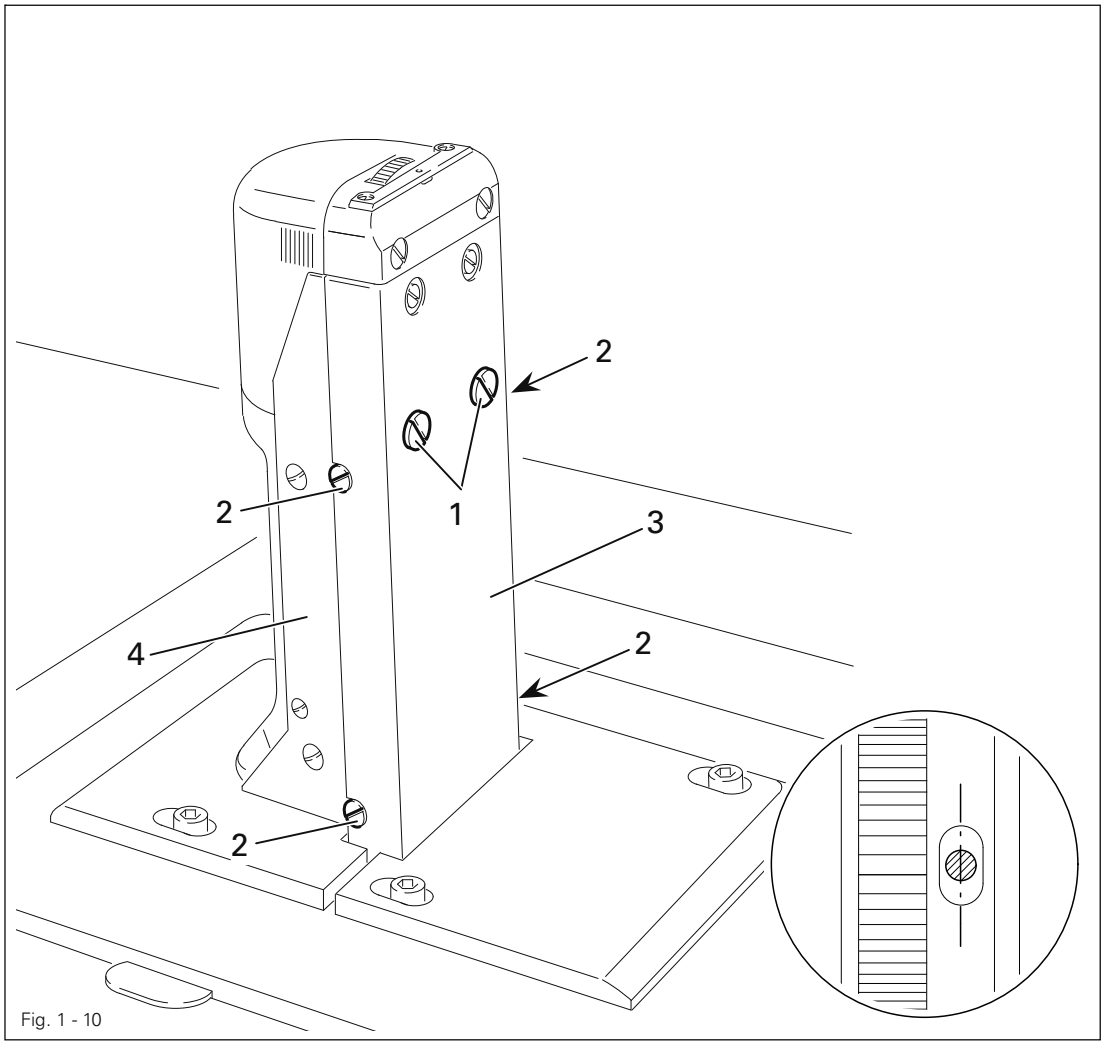


Fig. 1 - 10

- Turn screws **1** (screws **2**, on both sides of the post) according to the **requirement**. Ensure that support plate **3** is parallel to hook post **4**.

## 1.05.11 Needle position crosswise to sewing direction (on the PFAFF 2574)

**Requirement**
As seen crosswise to the sewing direction, the needles must penetrate in the centre of the needle holes.

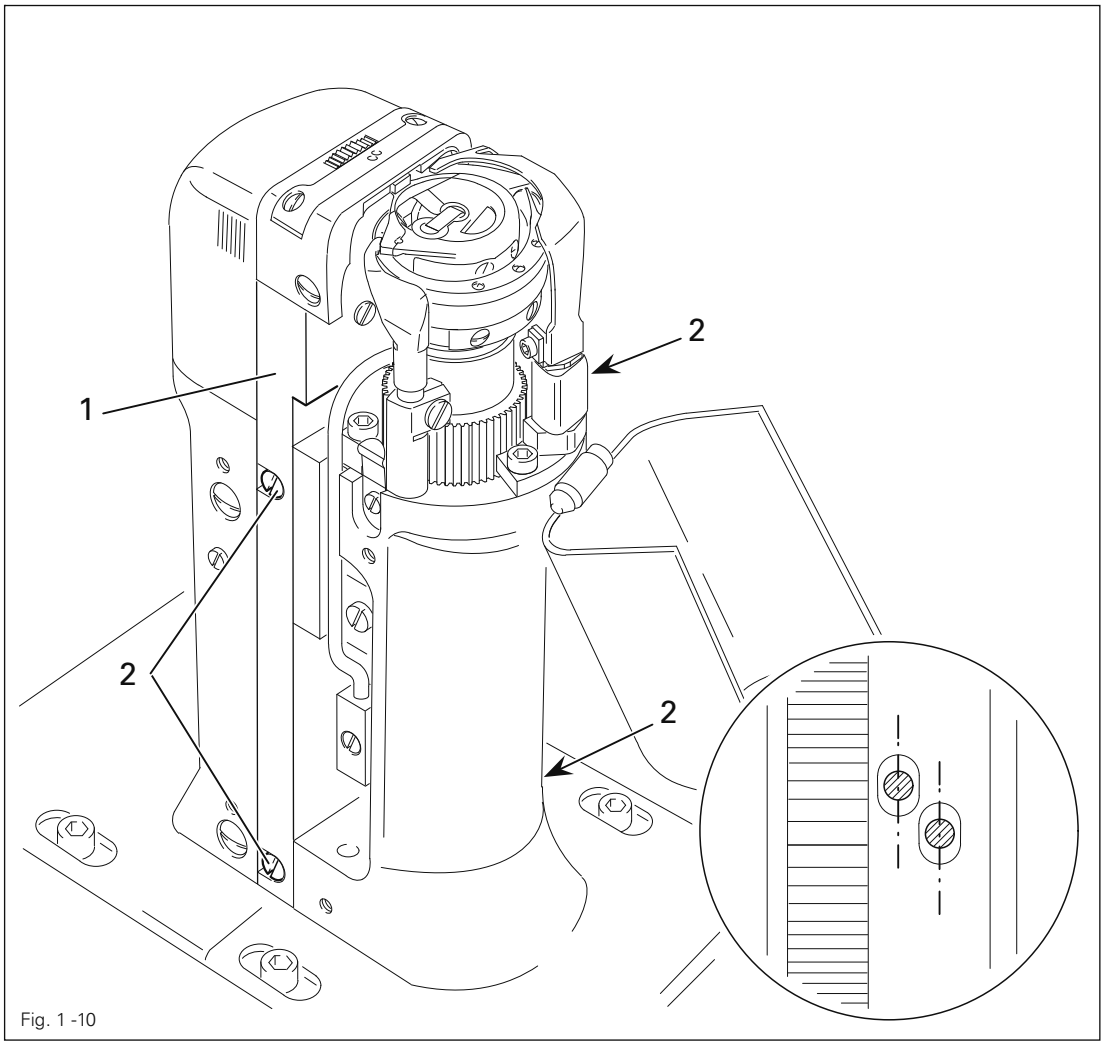



Fig. 1 -10

- Shift bearing plate **1** (screws **2**, on both sides of the post) according to the **requirement**.

## 1.05.12 Needle position crosswise to sewing direction (on the PFAFF 2591 ME)

**Requirement**
As seen crosswise to the sewing direction, the needle must penetrate in the centre of the needle hole.

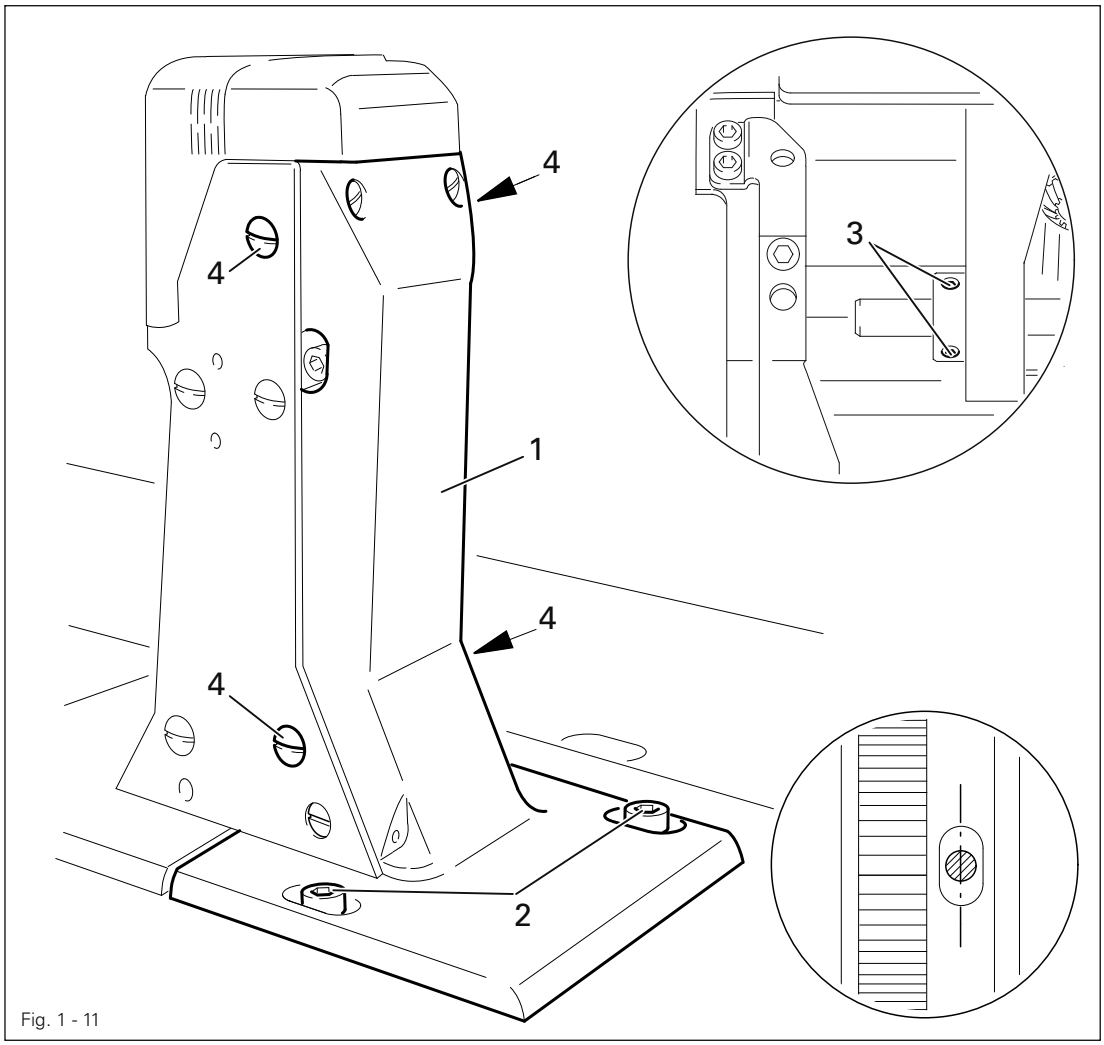



Fig. 1 - 11

- Adjust feed wheel post **1** (screws **2**, **3** and **4**) according to the **requirement**.

## 1.05.13 Height and stroke of the bobbin case opener

**Requirement**

1. The top edges of the bobbin case opener **1** and bobbin case base **3** should be on one level.
2. When the bobbin case opener **1** has deflected the bobbin case to its furthest point, the catch of the bobbin case should be **0.3 - 0.5 mm** from the back edge of the needle plate recess.

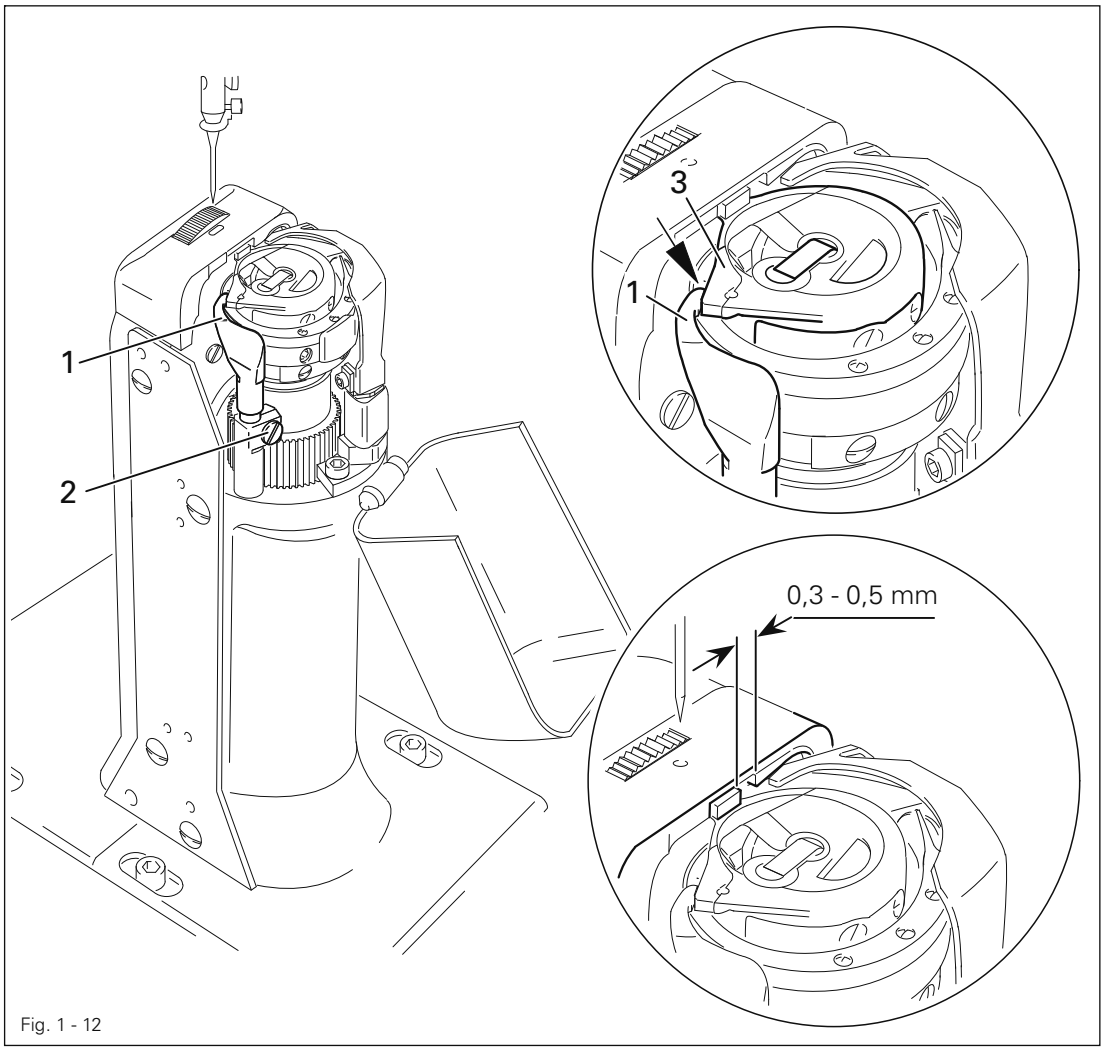
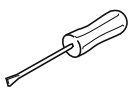



Fig. 1 - 12



- Adjust bobbin case opener **1** (screw **2**) in accordance with **requirement 1**.
- Turn the balance wheel until the bobbin case opener has deflected the bobbin case to its furthest point.
- Adjust bobbin case opener **1** (screw **2**) in accordance with **requirement 2**.

## 1.05.14 Height of the feed wheel (on the 2571 ME)

**Requirement**

1. When pressure is applied to the feed wheel **4**, it should protrude from the needle plate by tooth height (approx. **0.8** mm)
2. When no pressure is applied to the feed wheel **4** , it should have a vertical play of approx. **0.3** mm.

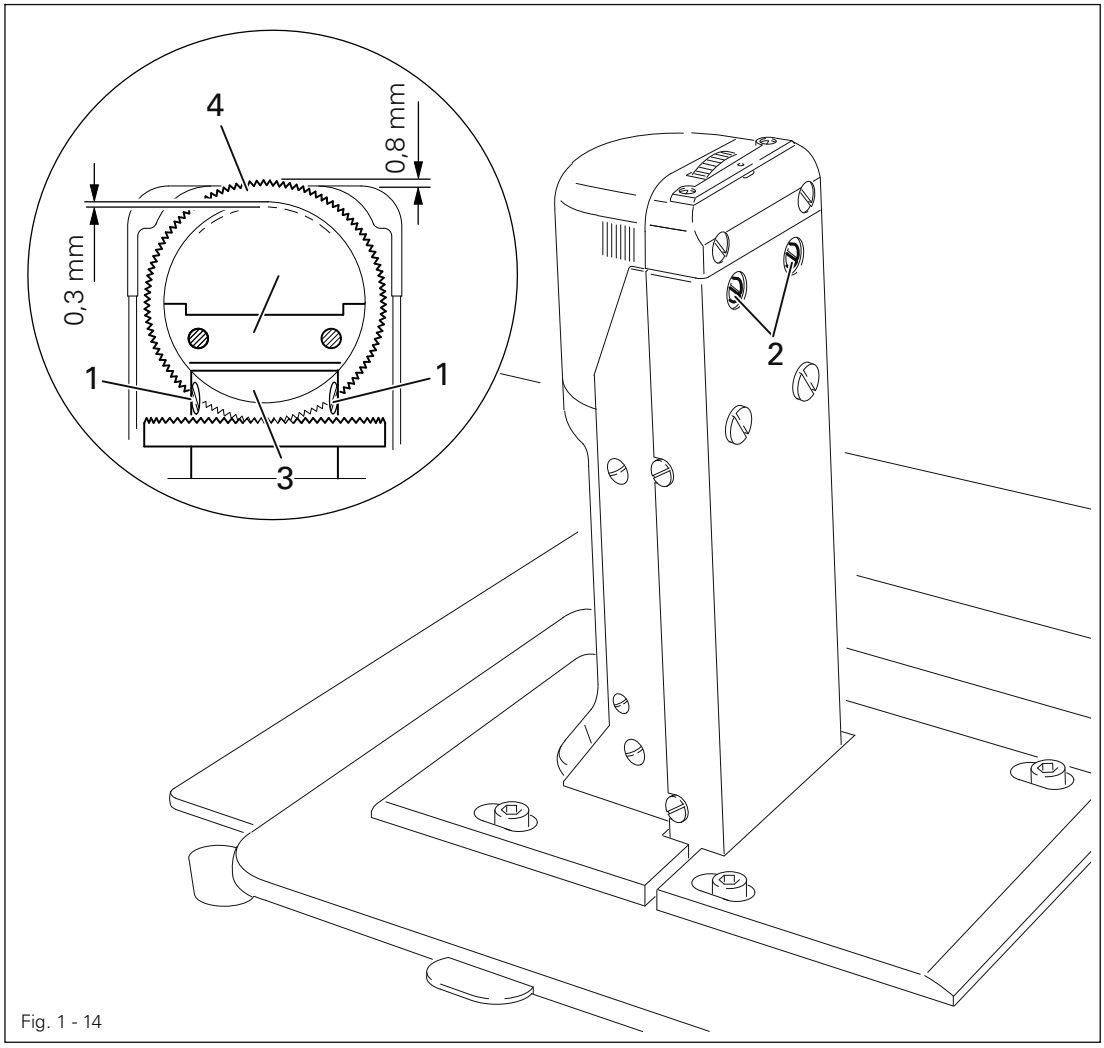
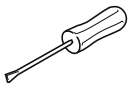



Fig. 1 - 14



- Swing out the roller presser.
- Loosen screws **1** and **2**.
- Adjust drive wheel **3** according to **requirement 1**, taking care to see that the teeth of drive wheel **3** and feed wheel **4** lock into each other properly.
  (Machines of model A have no interlocking).
- Tighten screws **1**.
- Adjust guide **5** according to **requirement 2** and tighten screws **2**.

## 1.05.15 Height of the feed wheel (on the 2574)

**Requirement**

1. When pressure is applied to the feed wheel **4**, it should protrude from the needle plate by tooth height (approx. **0.8** mm)
2. When no pressure is applied to the feed wheel **4** , it should have a vertical play of approx. **0.3** mm.

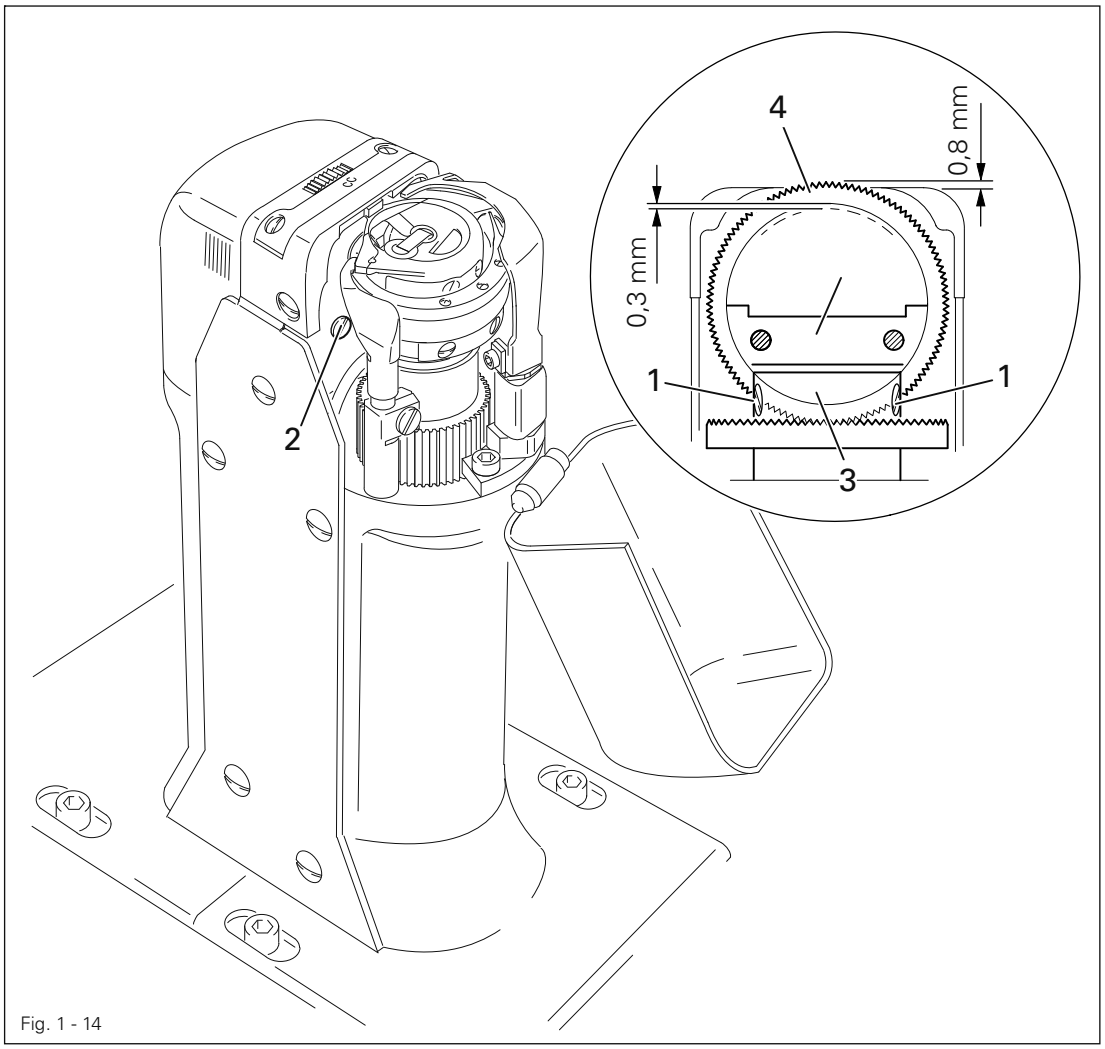
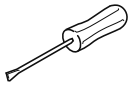



Fig. 1 - 14



- Swing out the roller presser.
- Loosen screws **1** and **2** (two screws each).
- Adjust drive wheel **3** according to **requirement 1**, taking care to see that the teeth of drive wheel **3** and feed wheel **4** lock into each other properly.
- Tighten screws **1**.
- Adjust guide **5** according to **requirement 2** and tighten screws **2**.

## 1.05.16 Height of the feed wheel (on the 2591)

**Requirement**
The feed wheel should protrude from the needle plate by tooth height (approx. **0.8 mm**)

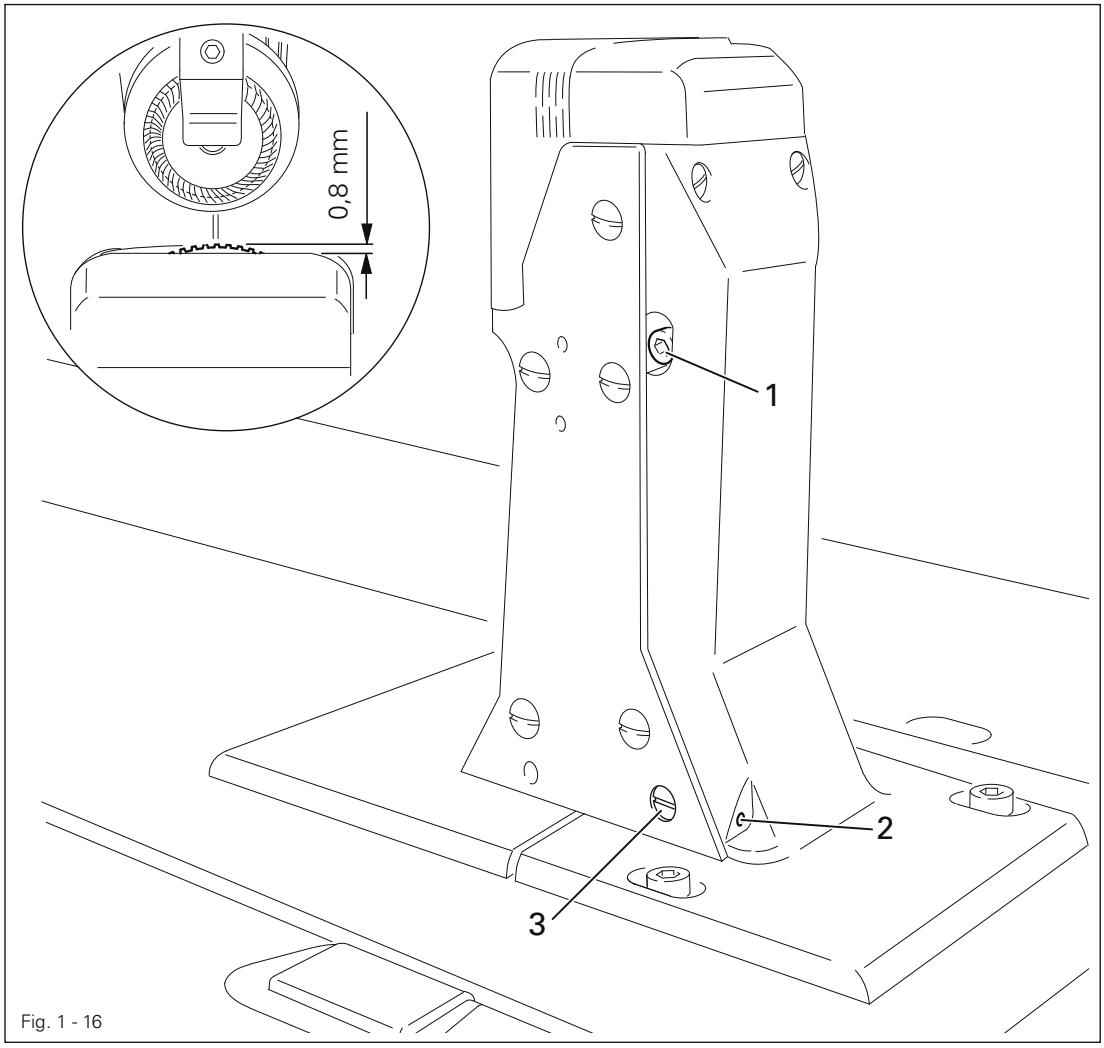
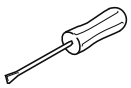



Fig. 1 - 16



- Swing out the roller presser.
- Loosen screws **1**.
- Adjust eccentric **3** (fastening screw accessible through hole **2**) according to the **requirement**.

## 1.05.17 Roller-presser

**Requirement**

When the roller-presser **1** is resting on the feed wheel **6** it must

1. be parallel to the feed wheel **6** when viewed in the direction of sewing,
2. be in the middle of the (needle when viewed in the direction of sewing and
3. be as close as possible to the needle when viewed in transverse direction of sewing.

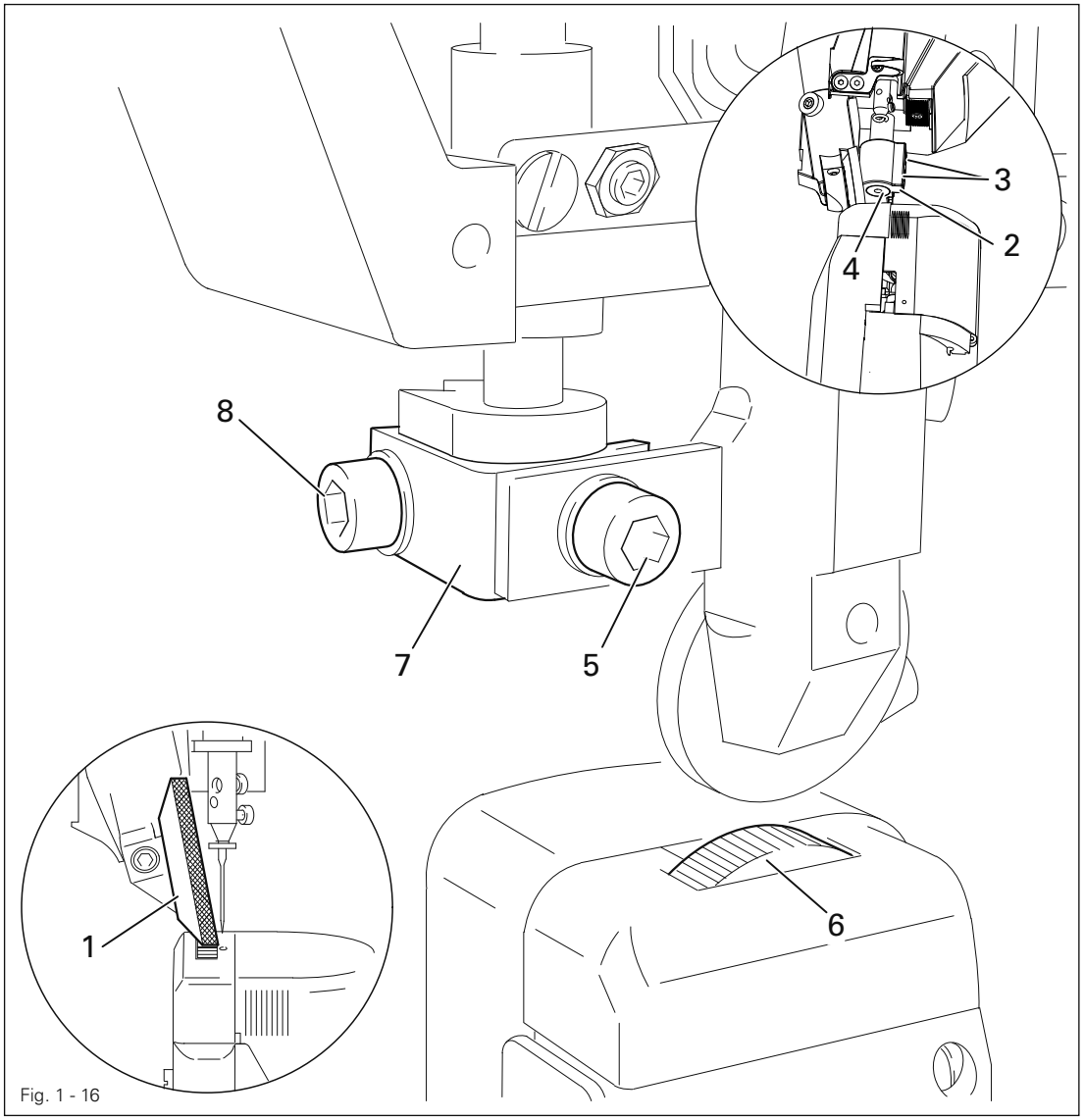



Fig. 1 - 16

- Raise the roller-presser **1**.
- Place roller-presser bracket **2** (screws **3**) flush to the bottom edge of presser bar **4**.
- Always observe **requirement 1** when carrying out the following adjustments.
- Move the roller-presser **1** ( screw **5** ) in accordance with **requirement 2**.
- Allow the roller-presser **1** to come to rest on the feed wheel **6**.
- Move bracket **7** (screw **8**) according to requirement **3**.

When sewing very tight curves the roller-presser **1** should be moved toward the operator slightly.

## 1.05.18 Clearance between roller presser and feed wheel

**Requirement**

1. With a resting roller-presser there should be a gap between the lift piece **1** and the housing of about **3mm**.
2. With a raised roller-presser the distance between roller-presser and feed wheel should be **8mm**.

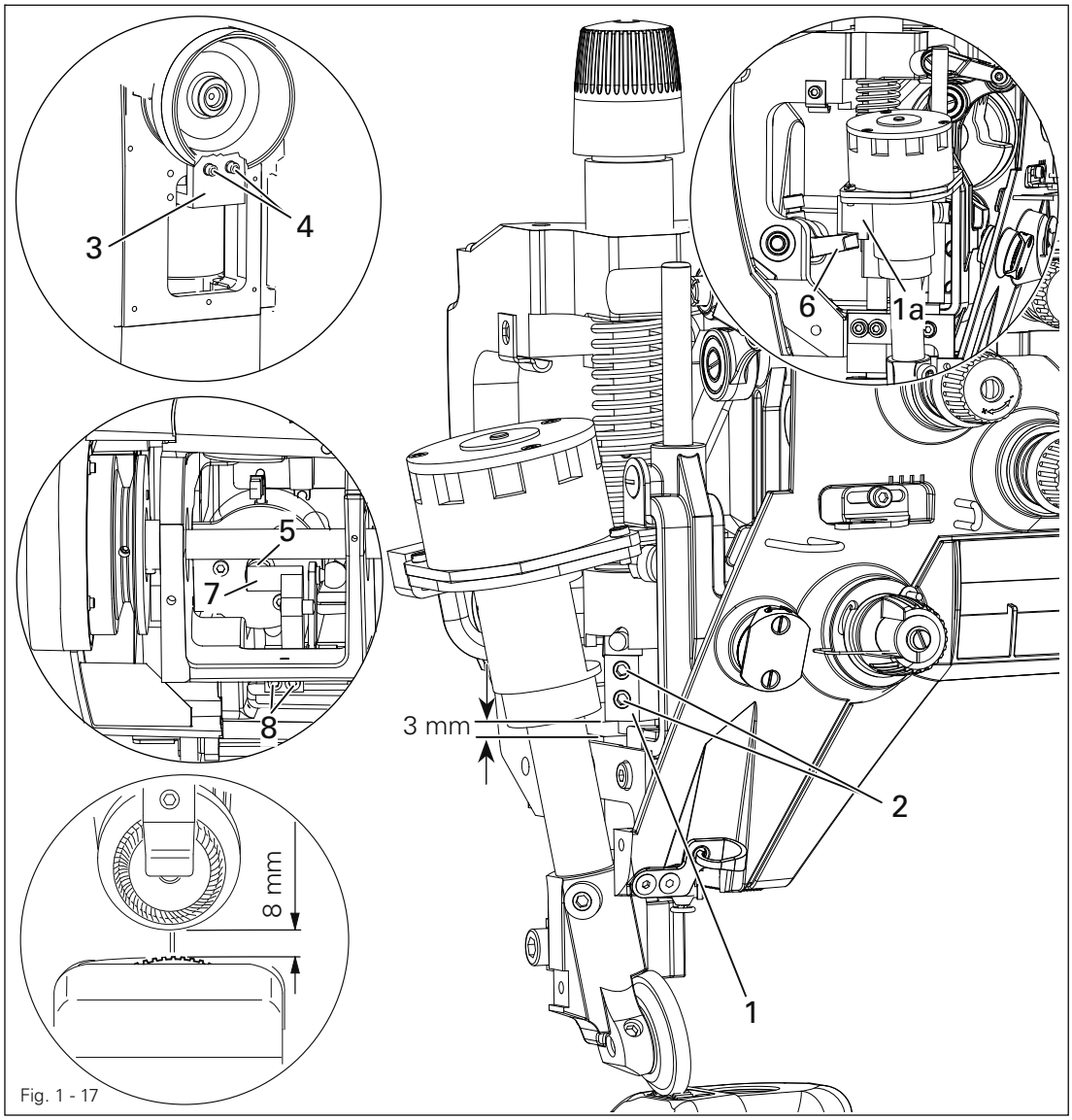



Fig. 1 - 17

- Set the roller-presser down on the needle plate.
- Decrease roller-presser pressure.
- Adjust lift piece **1** (screws **2**) according to the requirement **1**.
- Push magnet bracket **3** (screws **4**) downwards as far as it will go.
- Raise the roller-presser and place an **8mm** gauge under the roller-presser.
- With magnet plunger **5** extended, move lever **6** up against lift piece **1**a and mount lever **7** (screws **8**) on to magnet plunger **5**.
- Check according to the requirement.

## 1.05.19 Knee lever

**Requirement**

1. When the knee lever is pressed the roller-presser should raise up **7mm**
2. Before the roller-presser raises up, the knee lever should have a little bit of clearance.

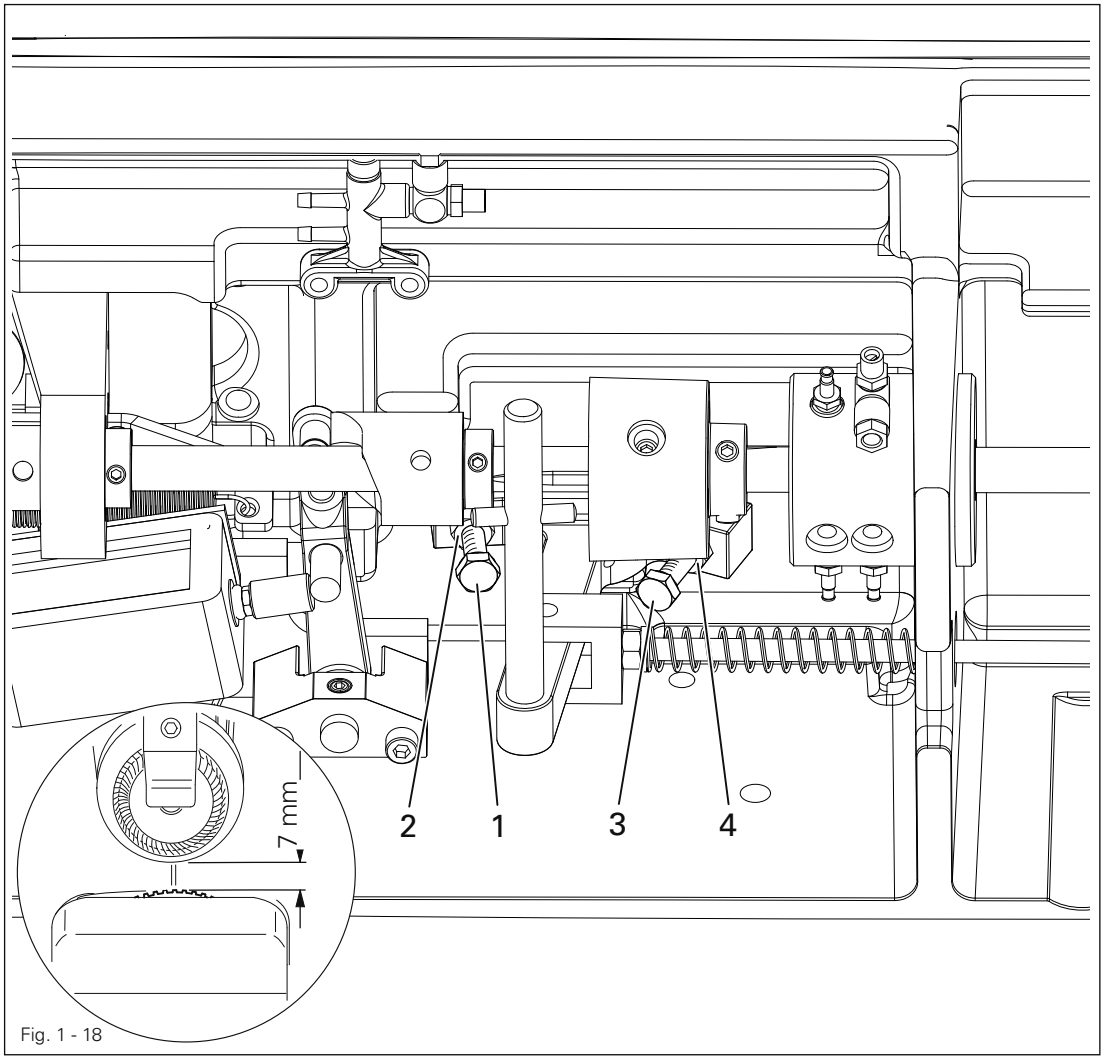
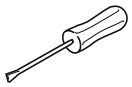



Fig. 1 - 18



- Turn screw **1** (nut **2**) according to **requirement 1** .
- Turn screw **3** (nut **4**) according to **requirement 2**.

## 1.05.20 Tension release

**Requirement**
With the roller-presser raised the tension shims **3** should be about **0.5mm** loosened from each other.

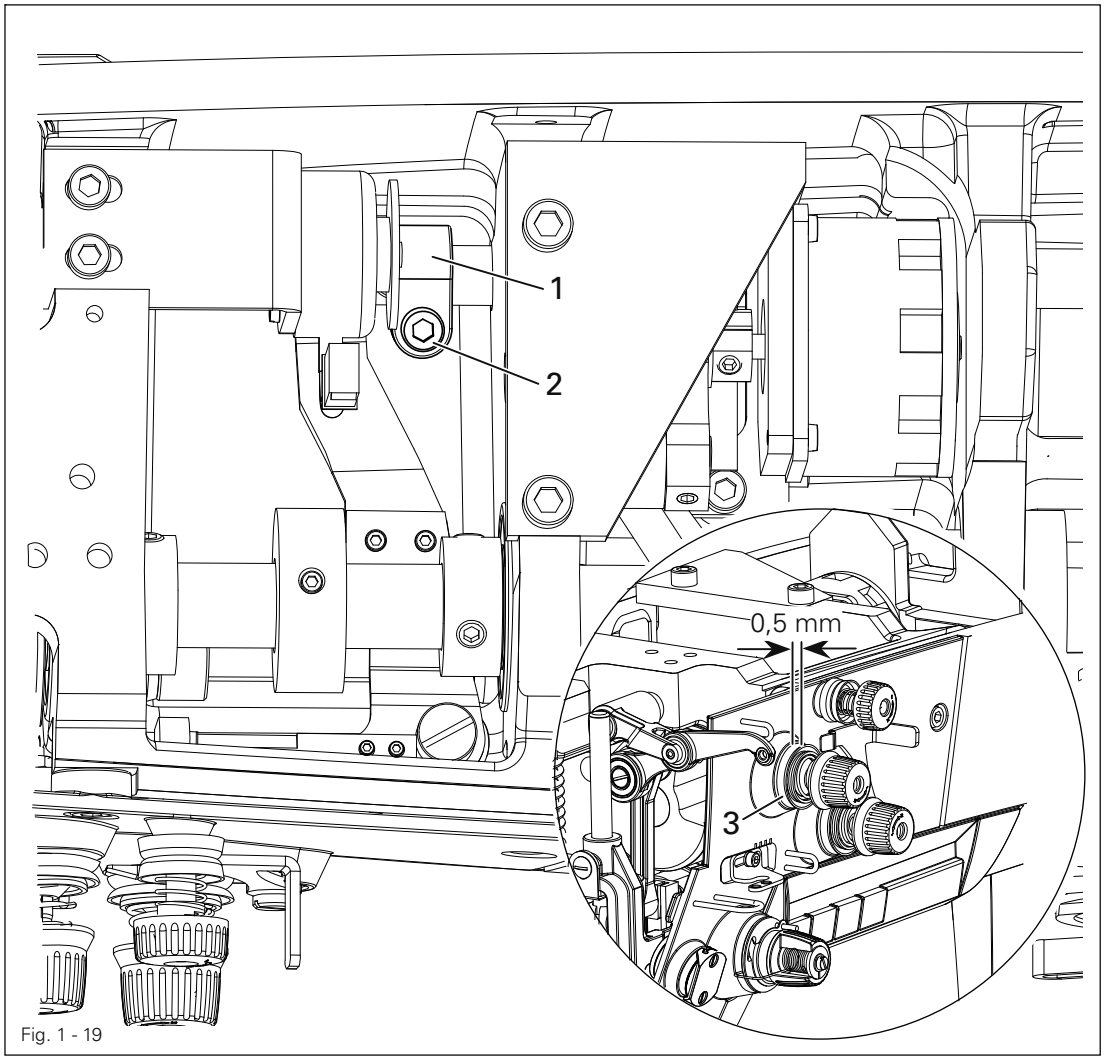
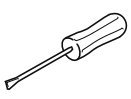


Fig. 1 - 19



- Raise roller-presser and calibrate lever **1** (screw **2**) according to the requirement.

## 1.05.21 Thread check spring and thread regulator

**Requirement**

1. The movement of thread regulator **3** must be completed when the needle point enters the material.
2. When the thread loop is at its largest while being passed around the hook, the check thread spring **3** should rise slightly from the rest **1**.

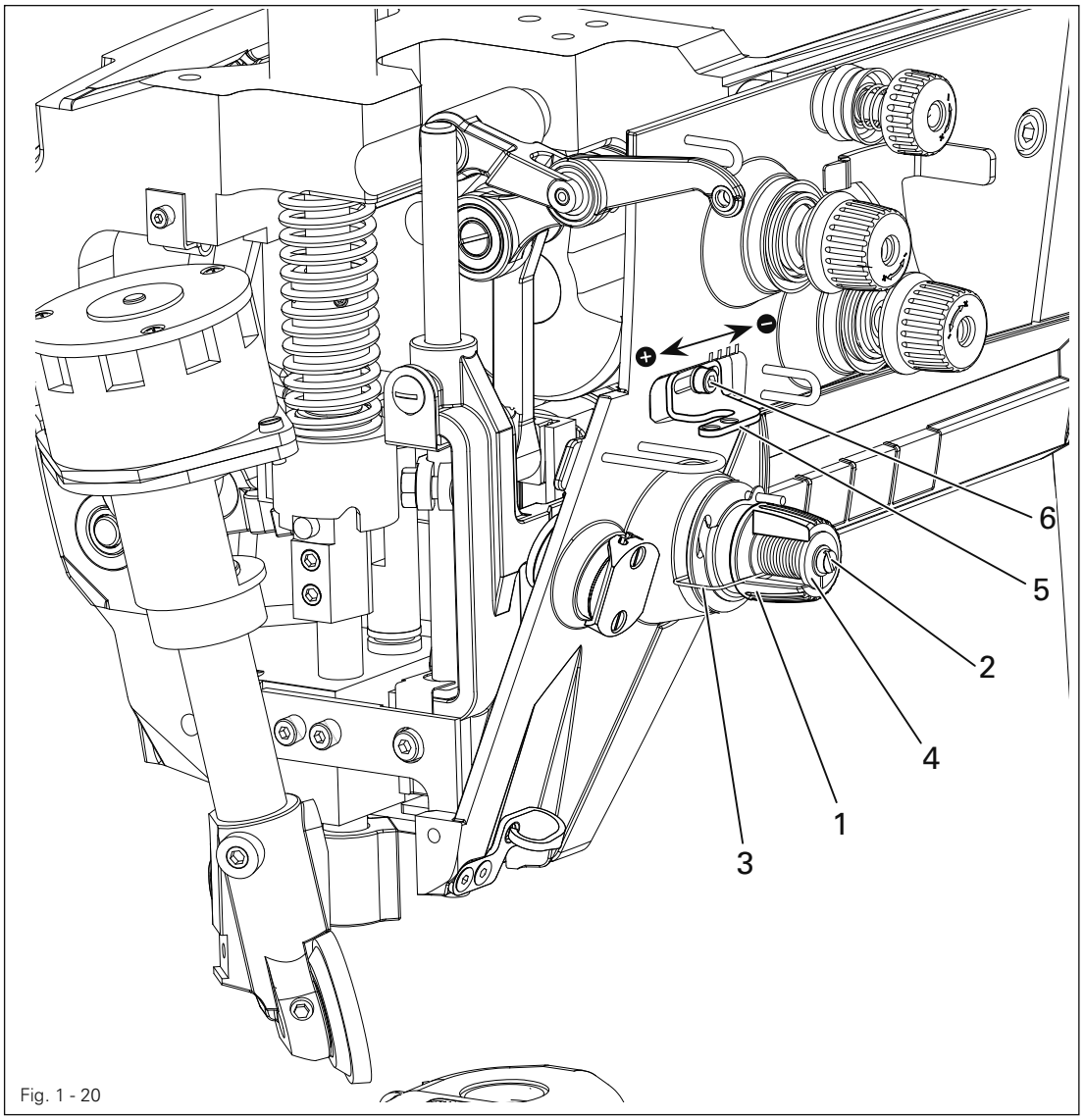
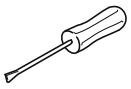



Fig. 1 - 20



- Position rest **1** (screw **2**) in accordance with **requirement 1**.
- Turn sleeve **4** (screw **2**) to adjust the tension of thread check spring **3**.
- Position thread regulator **5** (screw **6**) in accordance with **requirement 2**.

For technical reasons it may be necessary to deviate from the indicated spring stroke or spring tension.
Move thread regulator **5** (screw **6**) towards ("+") (= more thread) or ("-") (= less thread).

## 1.05.22 Bobbin winder

**Requirement**

1. When the bobbin winder is engaged, the winding spindle must be driven reliably. When it is disengaged, friction wheel **3** should not be touching drive wheel **1**.
2. When it is switched off, the bobbin winder must click securely into its end position (knife raised).

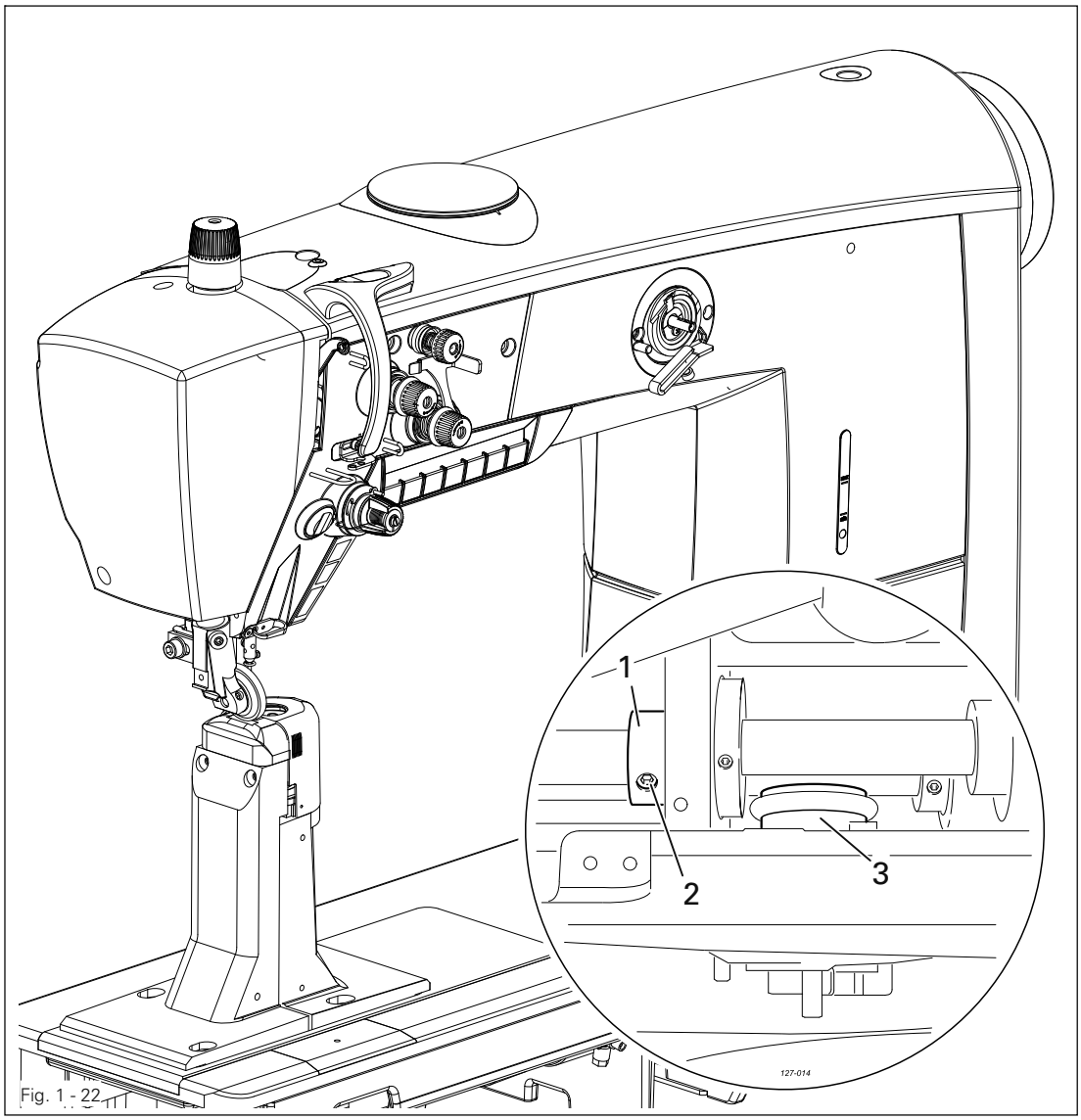
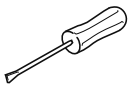



Fig. 1 - 22



- Adjust drive wheel **1** (screw **2**) in accordance with the **requirement**.

## 1.05.23 Sewing foot pressure

**Requirement**

1. The material must be fed smoothly.
2. No pressure marks should be visible on the material.

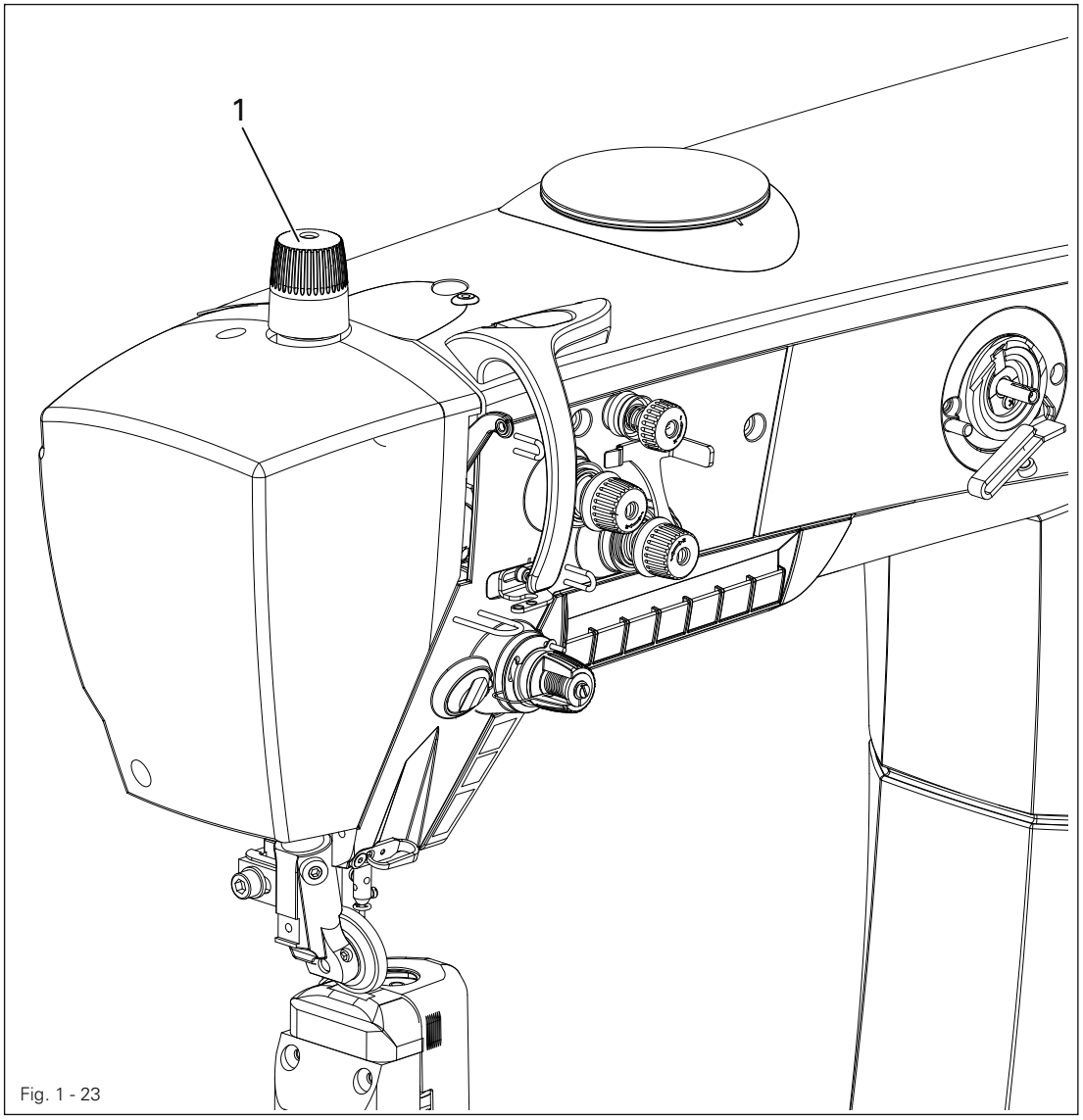
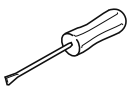



Fig. 1 - 23



- Turn adjustment screw **1** in accordance with the **requirement**.

## 1.05.24 Lubrication

**Requirement**
After a running time of 10 seconds a fine line of oil should form on a strip of paper held next to the hook.

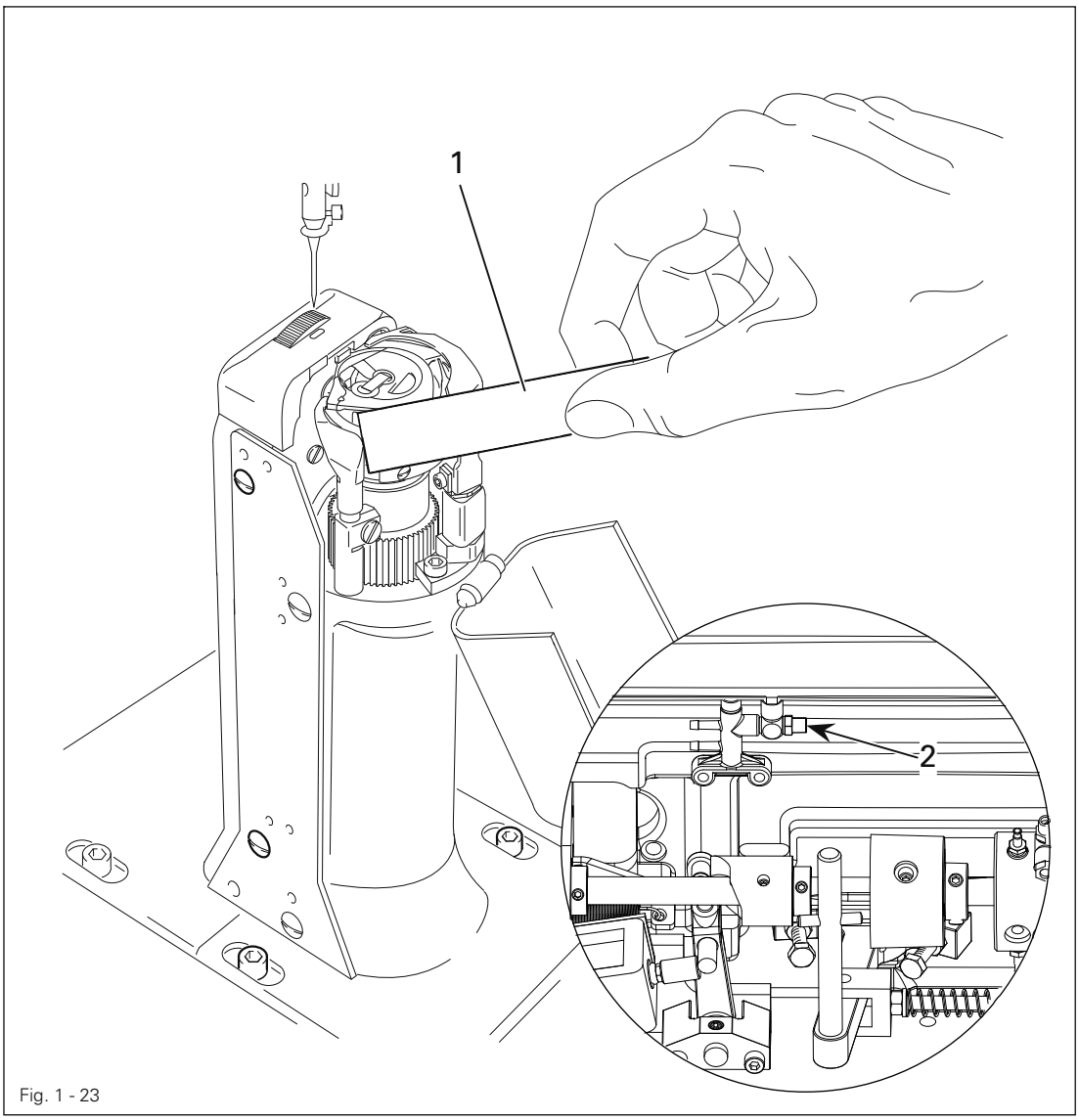
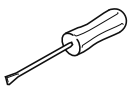



Fig. 1 - 23



- Check whether oil has been filled in and that there is no air in the oil lines.
- Let the machine run for 2-3 min.

While the machine is running do not place hands in the needle or hook area!
Danger of injury from moving parts!

- With the machine running hold a strip of paper 1 on the hook and check the **requirement**.
- If necessary, adjust the oil flow on screw 2.

## 1.05.25 Re-engaging the slip-clutch

Clutch **1** is adjusted at the works. In the case of a thread jamming, clutch **1** will disengage, in order to avoid damage to the hooks.
The following describes how to re-engage clutch **1**.

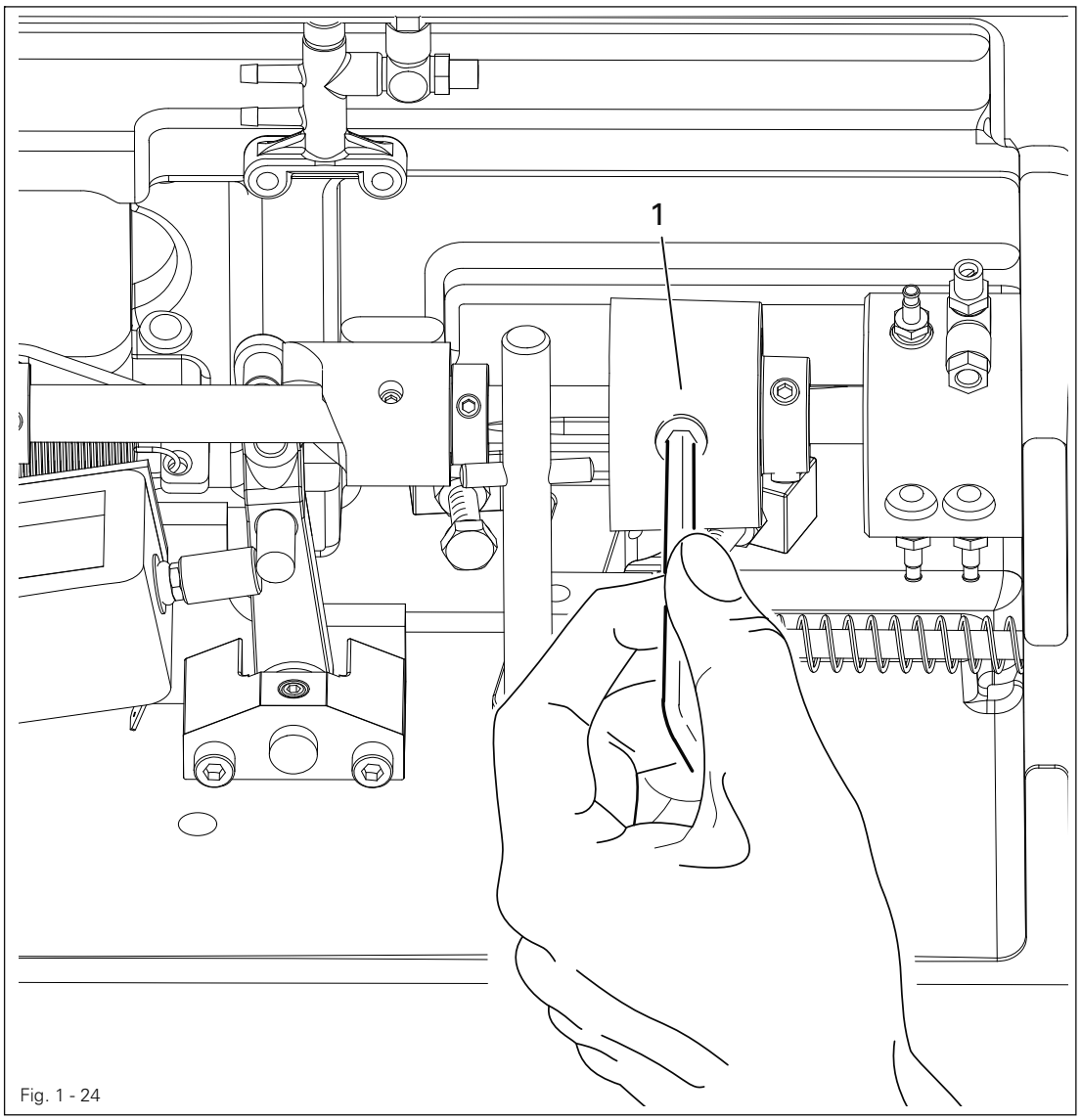



Fig. 1 - 24

- Remedy jammed thread fault.
- Hold clutch **1** firmly, as shown in Fig. **1** - **19**, and turn the balance wheel until clutch **1** re-engages.

## 1.06 Adjusting the edge trimmer -725/04

### 1.06.01 Position of the knife holder on model 2571

Requirement
When the thread trimmer is engaged and the adjusting wheel has been turned to its highest position
1. the knife holder **2** must be parallel to the post and
2. the top edge of the needle plate must be in the centre of the angular knife opening.

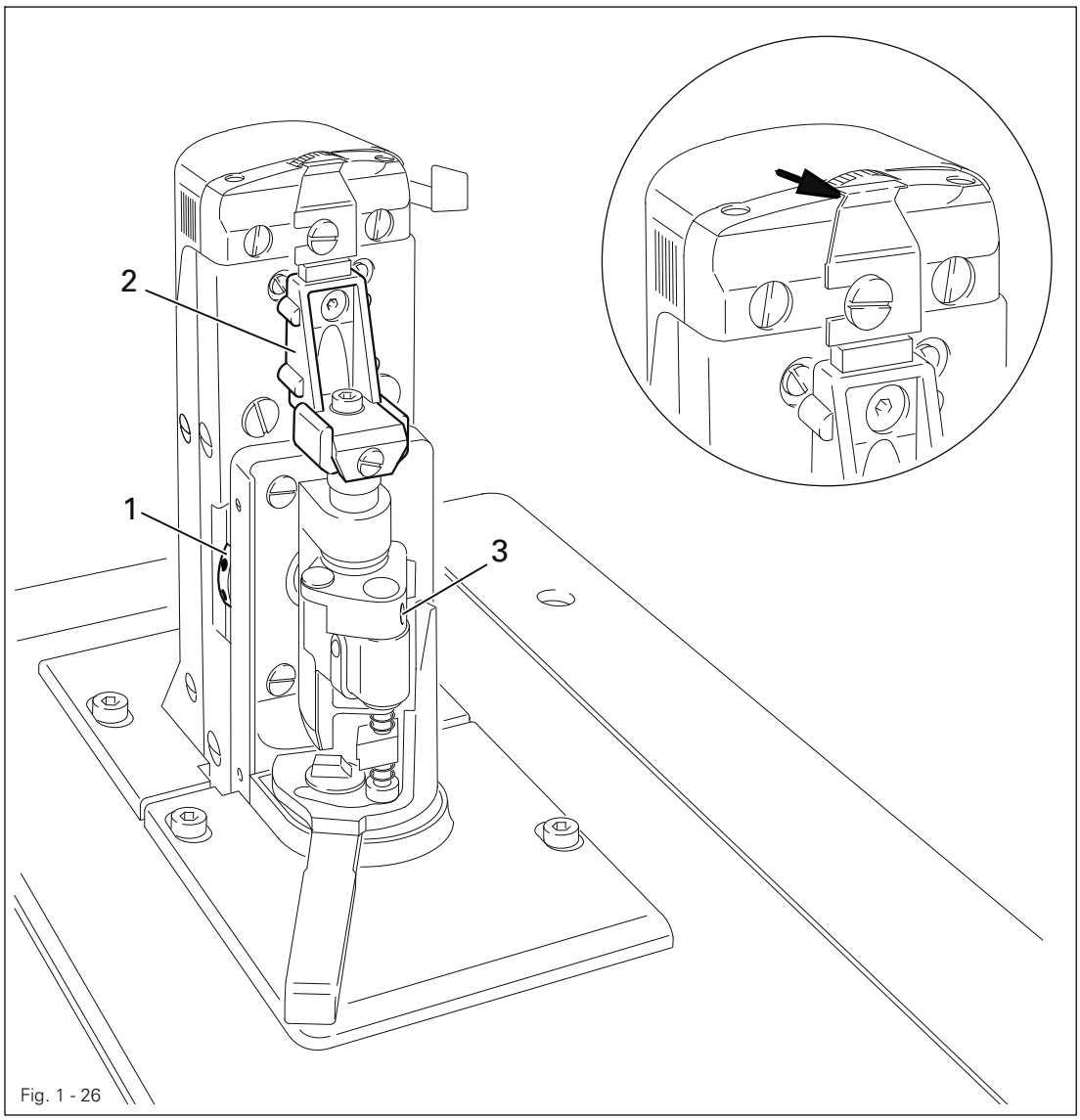


Fig. 1 - 26

- Turn the adjusting wheel **1** to its highest position and engage edge trimmer.
- Adjust knife holder **2** (screw **3**) according to the requirements.

## 1.06.02 Position of the knife holder on model 2591

**Requirement**
When the thread trimmer is engaged, the centre of the angular knife opening must be level with the top edge of the needle plate.

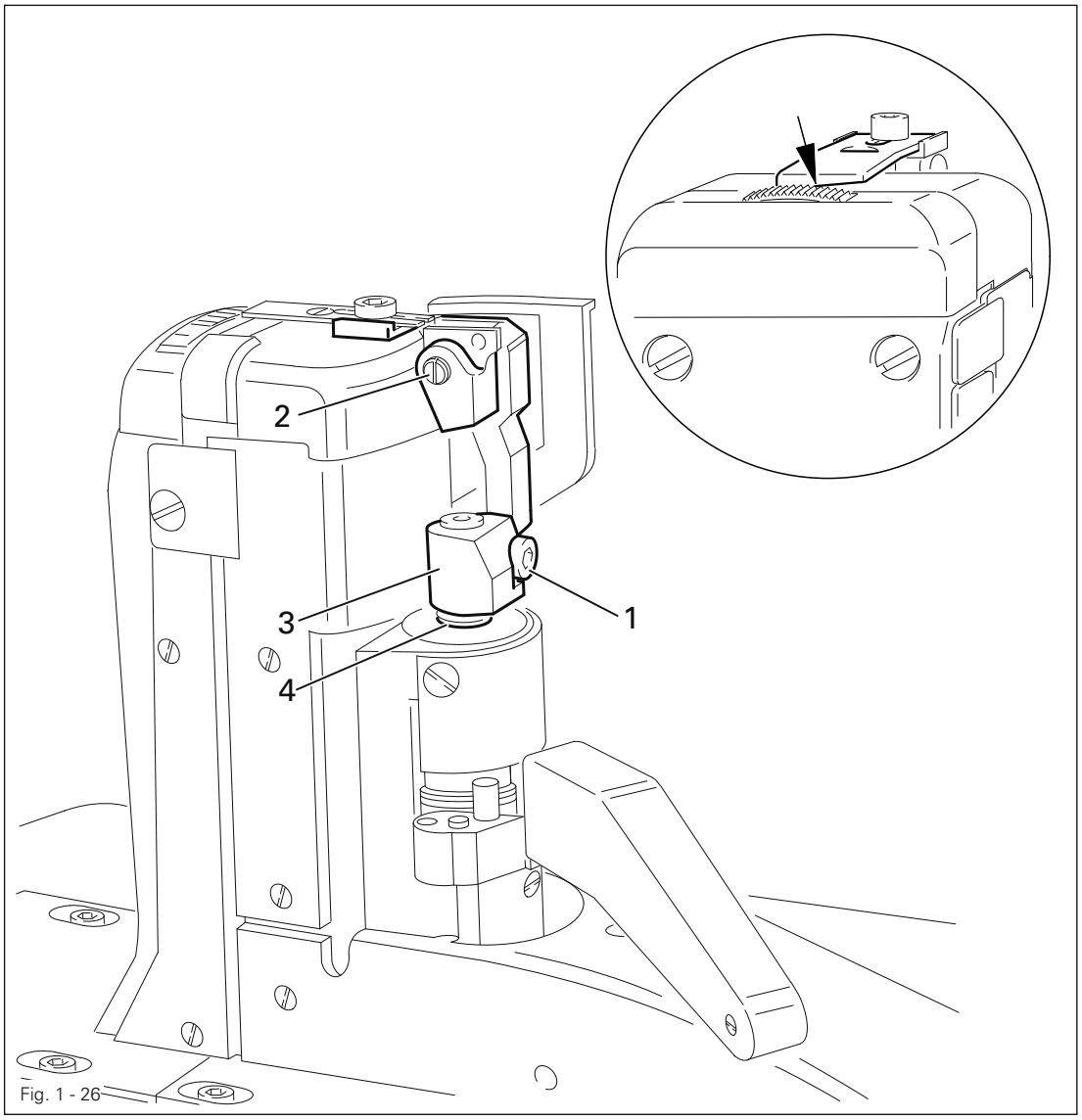


Fig. 1 - 26

- Switch off the machine and engage the edge trimmer.
- Loosen screw **1**.
- By turning sccentric **2**, position the knife in the centre of its adjustment range.
- Adjust knife holder **3** according to the requirement and tighten screw **1**.
- Position locking ring **4** on the knife holder **3**.

Depending on the material thickness, changes in the basic setting of eccentric **2** are possible.

## 1.06.03 Knife stroke on model 2571 ME

**Requirement**
The knife stroke can be adjusted over a range from **1.0** to **3.5** mm, allowing the best possible adaption to all materials used.

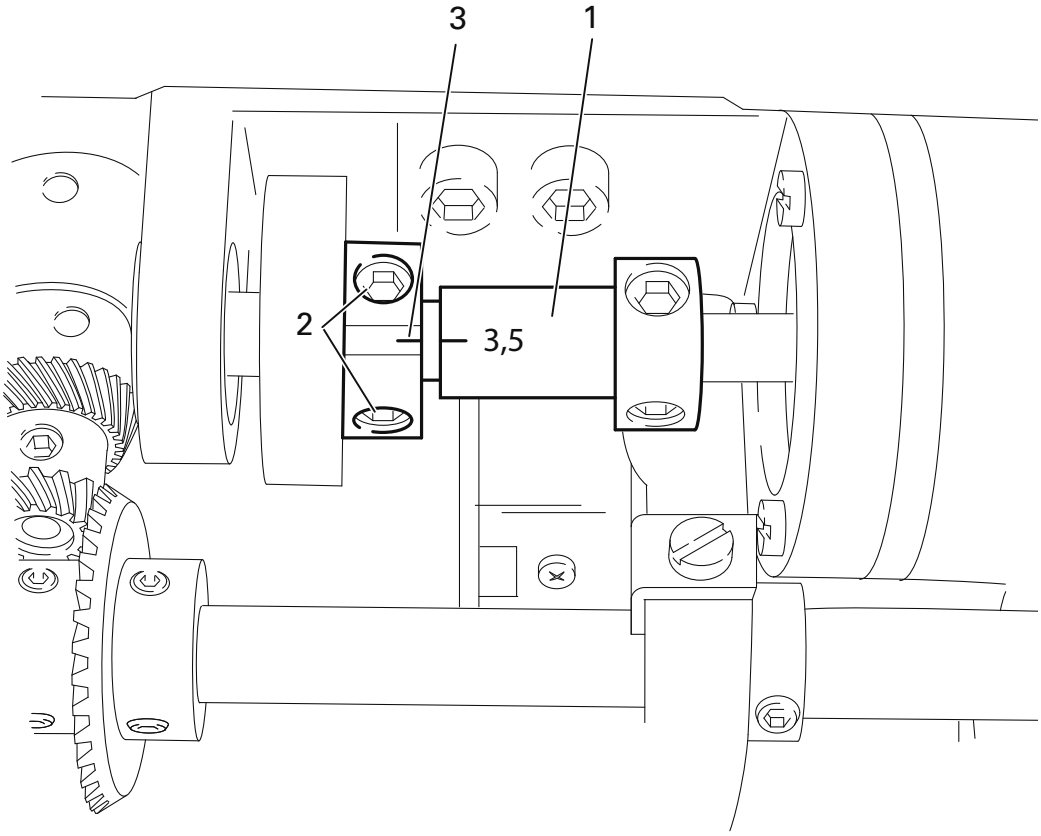
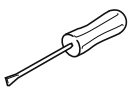



Fig. 1 - 28



- Turn eccentric **1** (screws **2**) so that the marking of the desired cutting stroke is opposite the marking on clamp collar **3**.

## 1.06.04 Knife stroke on model 2591 ME

**Requirement**
The knife stroke can be adjusted over a range from **2.0** to **3.5** mm, allowing the best possible adaption to all materials used.

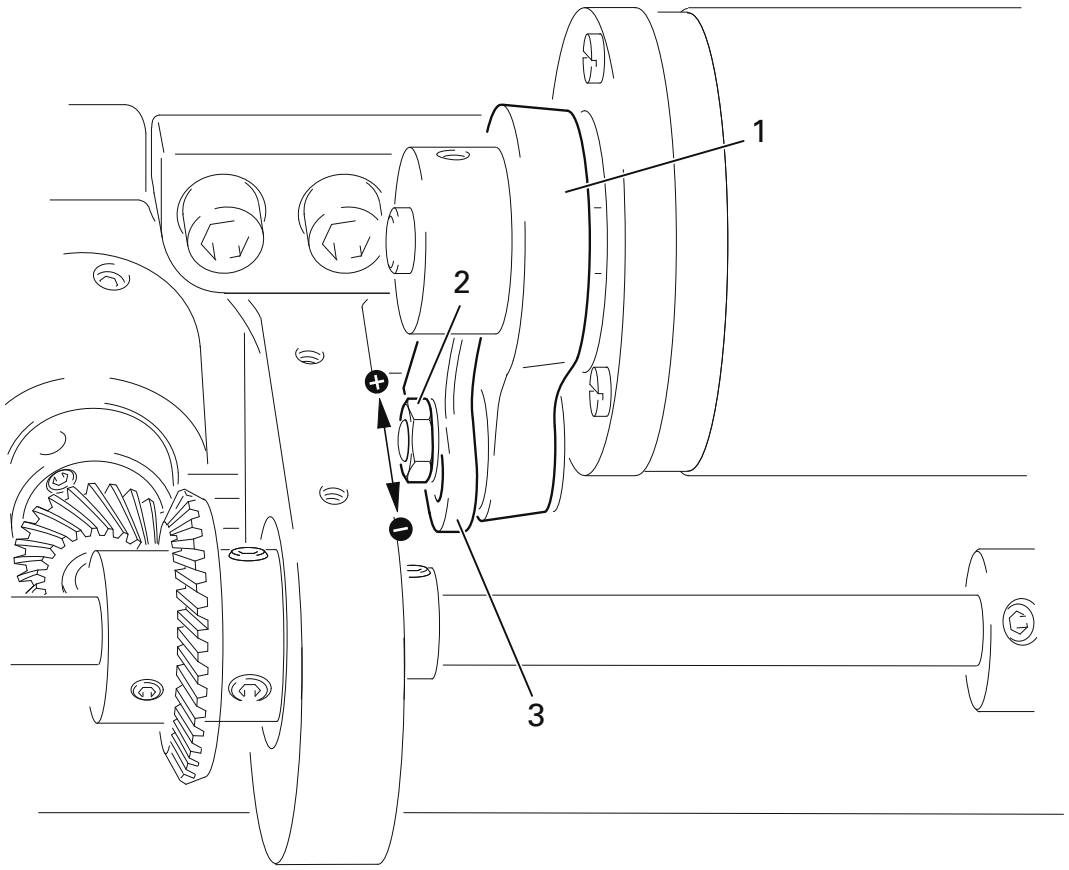



Fig. 1 - 29

- Adjust crank **1** (nut **2**) in slotted lever **3** according to the requirement.

## 1.06.05 Cutting stroke on model 2571 ME

**Requirement**
When the edge trimmer is engaged and the needle is in the needle hole, the stroke of knife **1** should be half in front of and half behind the needle, when the motor shaft is turned by hand.

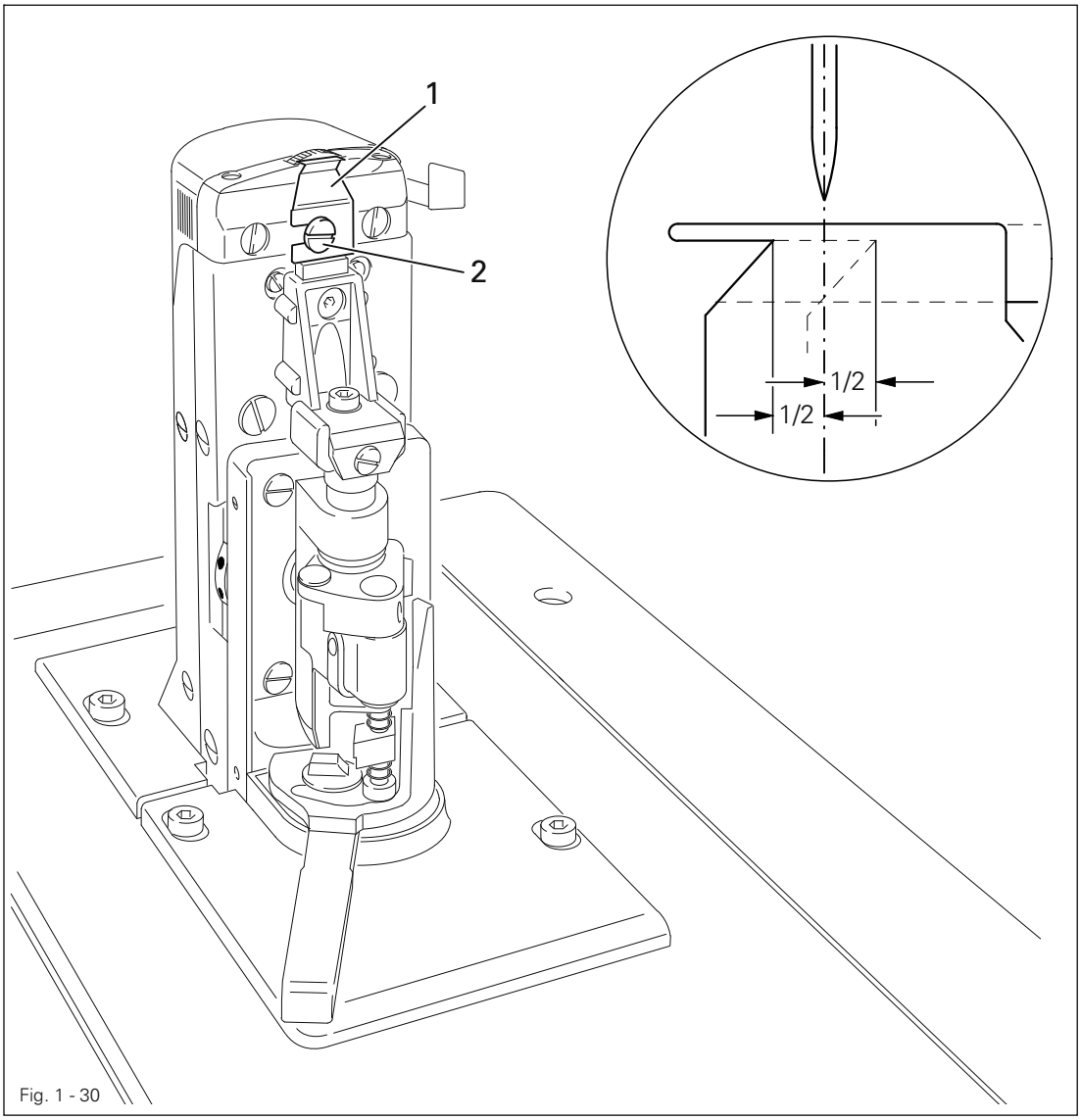



Fig. 1 - 30

- Switch off the machine and engage the edge trimmer.
- Adjust knife **1** (screw **2**) according to the **requirement**.

## 1.06.06 Cutting stroke on model 2591 ME

**Requirement**
When the edge trimmer is engaged and the needle is in the needle hole, the stroke of knife **3** should be half in front of and half behind the needle, when the motor shaft is turned by hand.

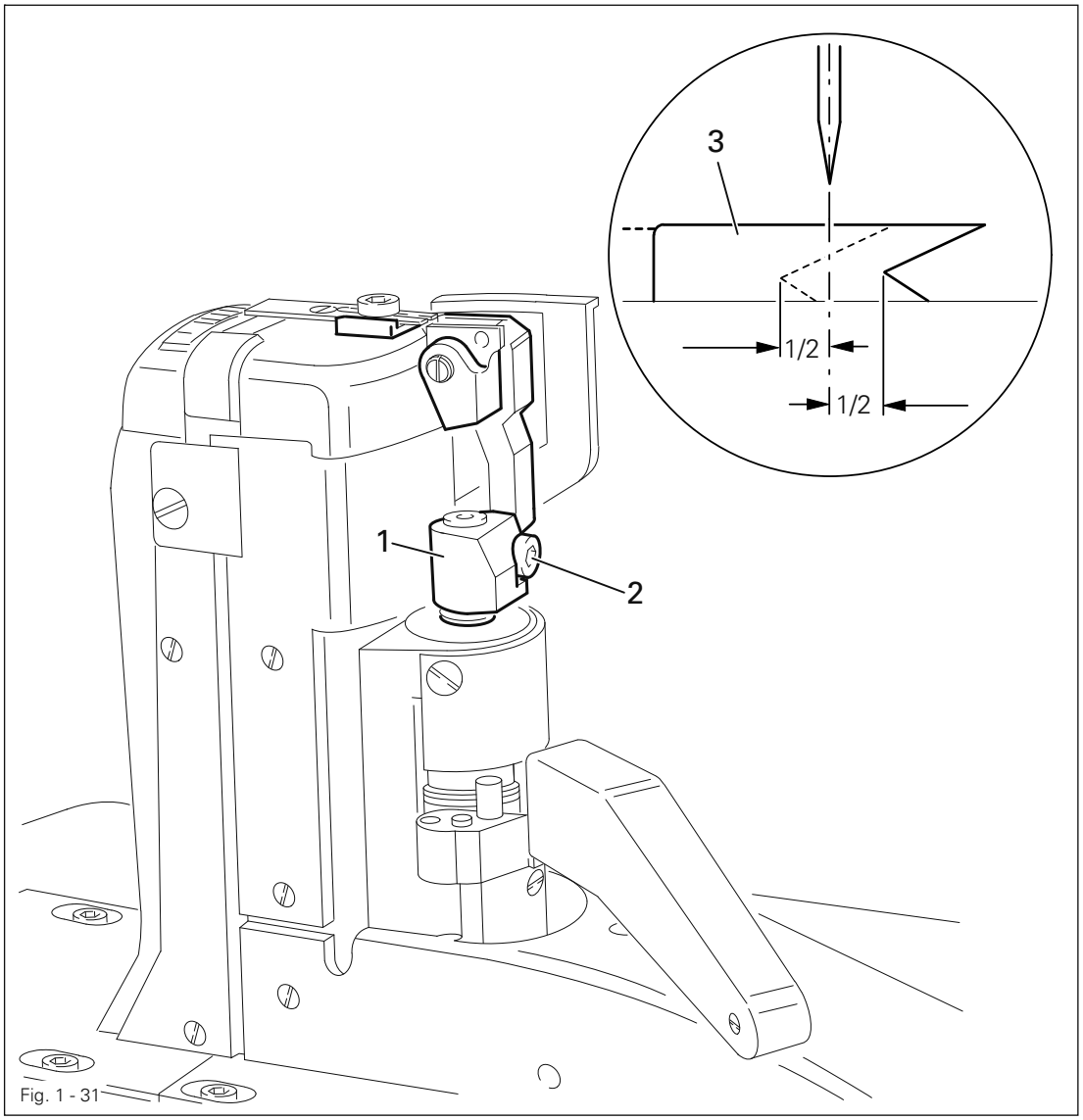


Fig. 1 - 31

- Switch off the machine and engage the edge trimmer.
- Adjust knife holder **1** (screw **2**) according to the **requirement**.

## 1.06.07 Knife position

**Requirement**
When the edge trimmer is engaged, the knife should rest lightly on the needle plate insert, but no whistling sound should occur during trimming.

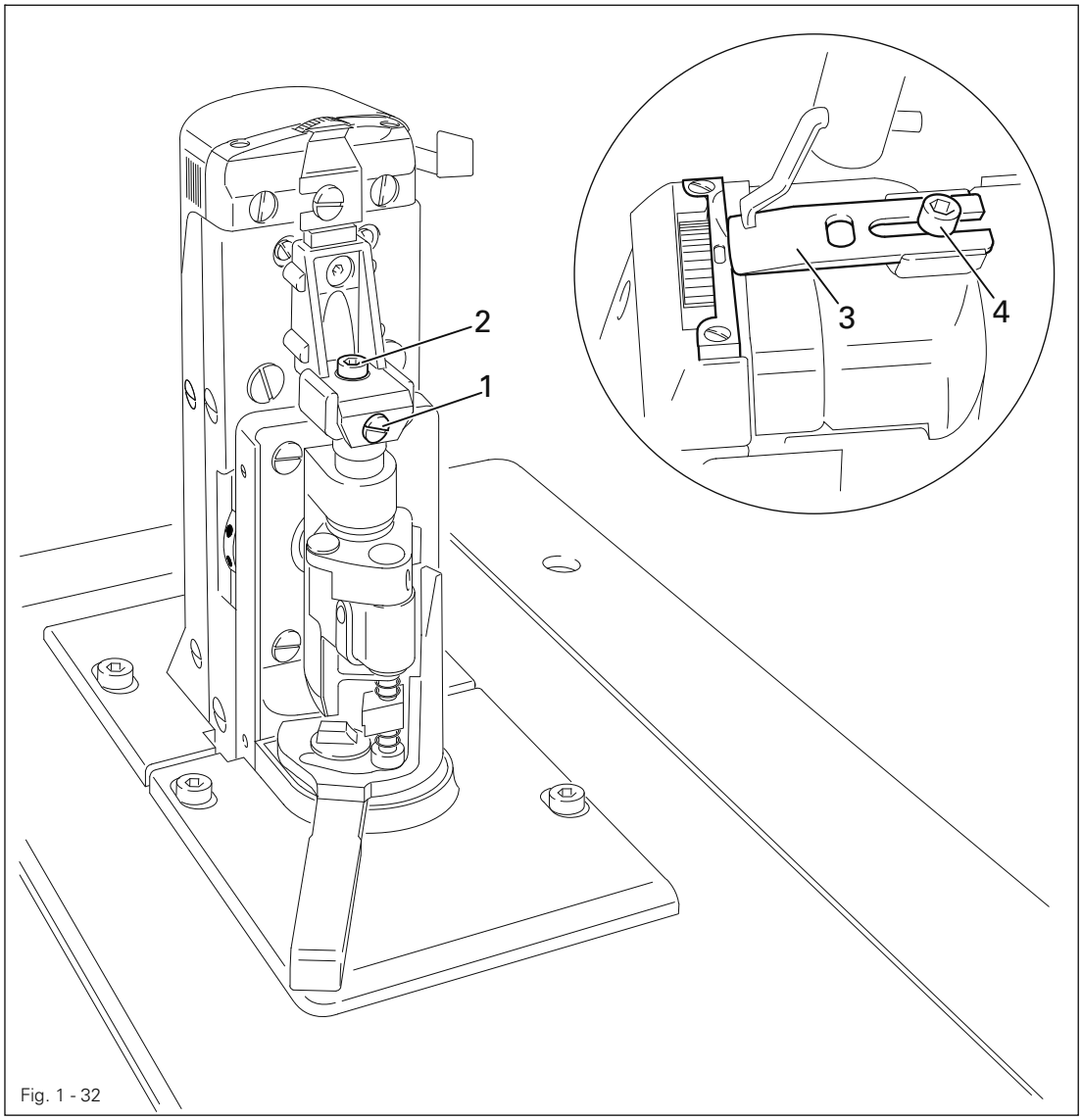



Fig. 1 - 32

PFAFF 2571 ME

- Adjust screw **1** (screw **2**) according to the requirements.
- Carry out a cutting test and repeat adjustment if necessary.

PFAFF 2591 ME

- Adjust knife **3** (screw **4**) according to the requirements.
- Carry out a cutting test and repeat adjustment if necessary.

## 1.07 Adjusting the thread trimmer -900/81

### 1.07.01 Resting position of the roller lever / radial position of the control cam

**Requirement**

1. When the thread trimmer attachment is at rest lever **7** should fit closely to plunger **5** and the roller on roller lever **4** should be **0.3mm** away from control cam **1**.
2. When thread lever at t.d.c. (handwheel position **53°**) the control cam **1** should have just bought roller lever **4** to rest.

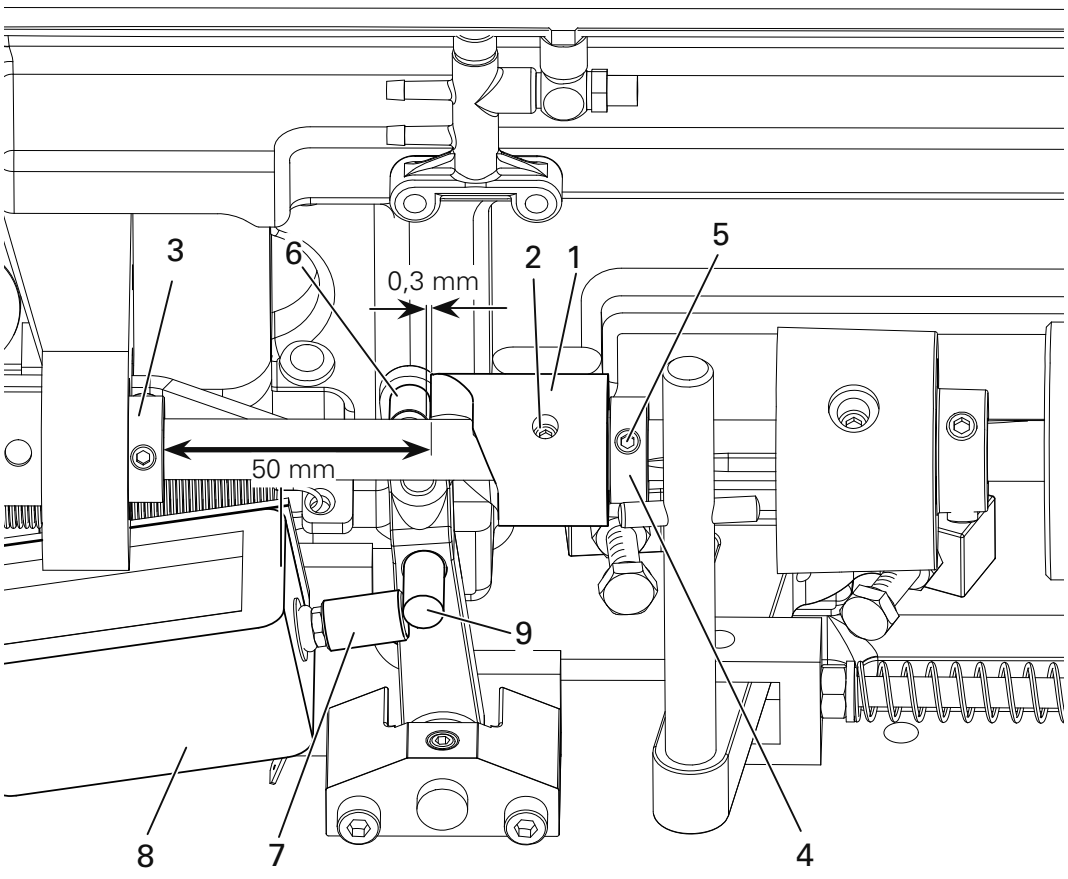



Fig. 1 - 33

- Create a distance of **50 mm** between the highest point of control cam **1** (screws **2**) and collar **3**.
- Move collar **4** into contact along control curve **1** and tighten screws **5**.
- Turn the handwheel in the direction of rotation until the highest point of control cam **1** is opposite roller **6**.
- Ensure that plunger **7** is at the leftmost position, move magnet **8** (two screws) according to requirement **1**.
- Turn control cam **1** (screws **2**) according to requirement **2**.

## 1.07.02 Position of the thread catcher holder

**Requirement**

1. There should be a minimum amount of play between toothed wheel **3** and toothed segment **4**.
2. Both in the neutral position and the foremost position of the catcher, the distance between the toothed segment **4** and the outer edge of the thread catcher holder **1** should be the same (see arrow).

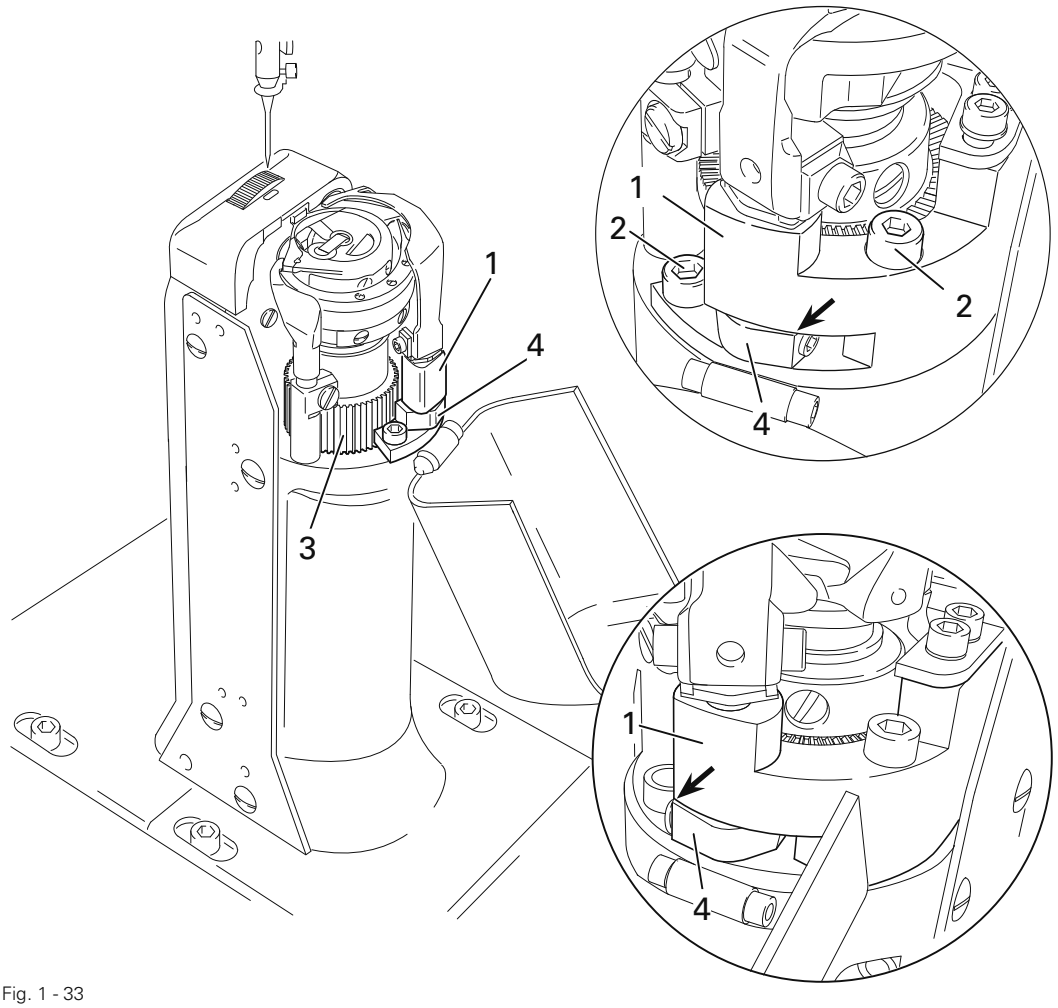



Fig. 1 - 33

- Adjust the thread catcher holder **1** (screws **2**) according to the **requirements**.

If **requirement 2** cannot be fulfilled, loosen screw **2** and move the toothed segment **4** by one tooth.

## 1.07.03 Distance between thread catcher and needle plate

**Requirement**
During its swivel movement thread catcher **1** should not pass the edge of the needle plate (see arrow in magnification).

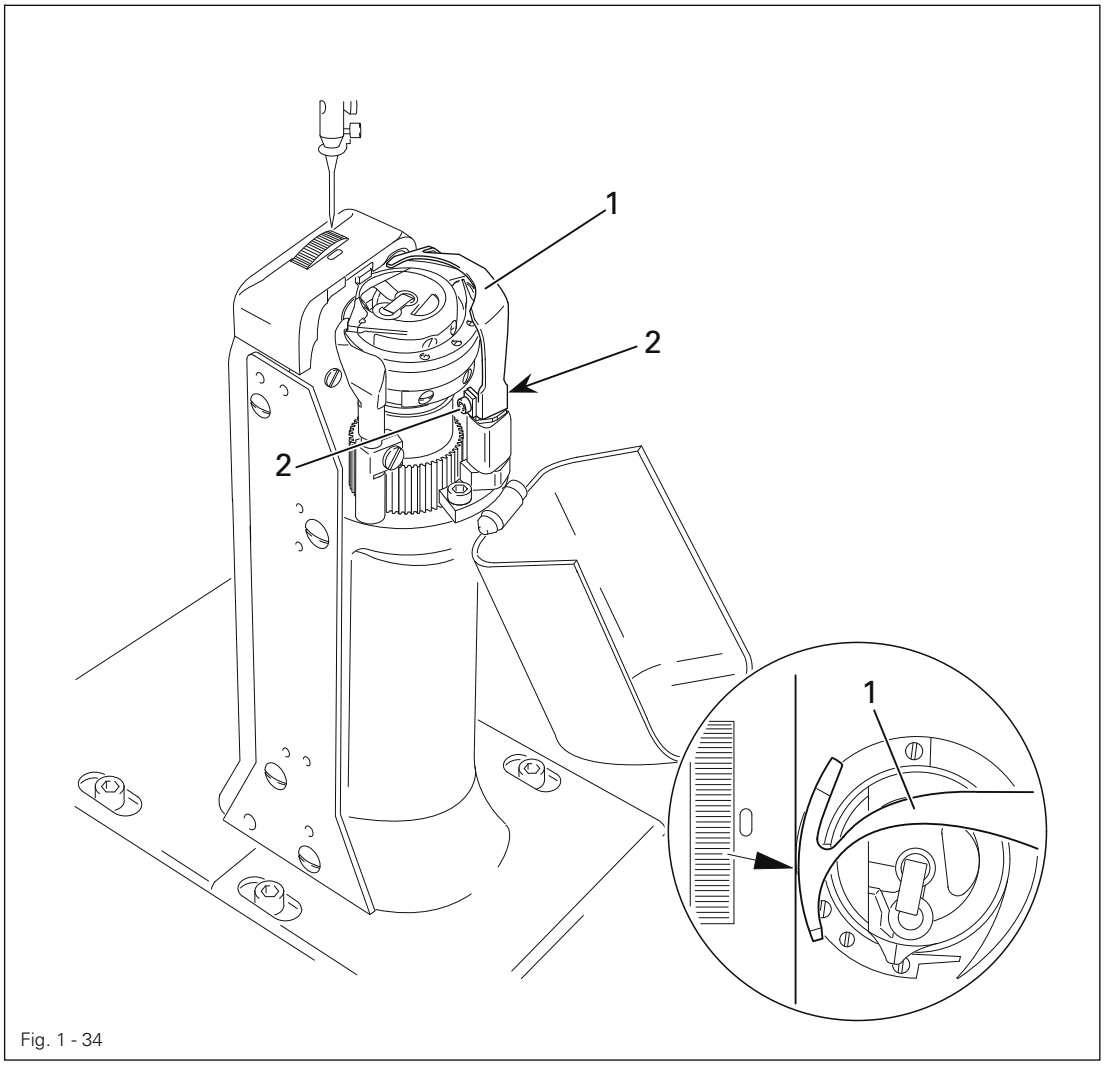
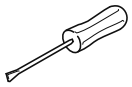



Fig. 1 - 34



- Move thread catcher **1** (screws **2**, two screws) parallel to the thread catcher holder in accordance with the **requirement**.

## 1.07.04 Position of the thread catcher

**Requirement**

1. The bottom edge of the thread catcher **1** should be at a distance of **0.1 mm** from the positioning finger of the bobbin case **5**.
2. When the thread trimmer is in its neutral position, the rear edge of thread catcher should be positioned approx. **2.5 - 3 mm** behind the edge of the knife.

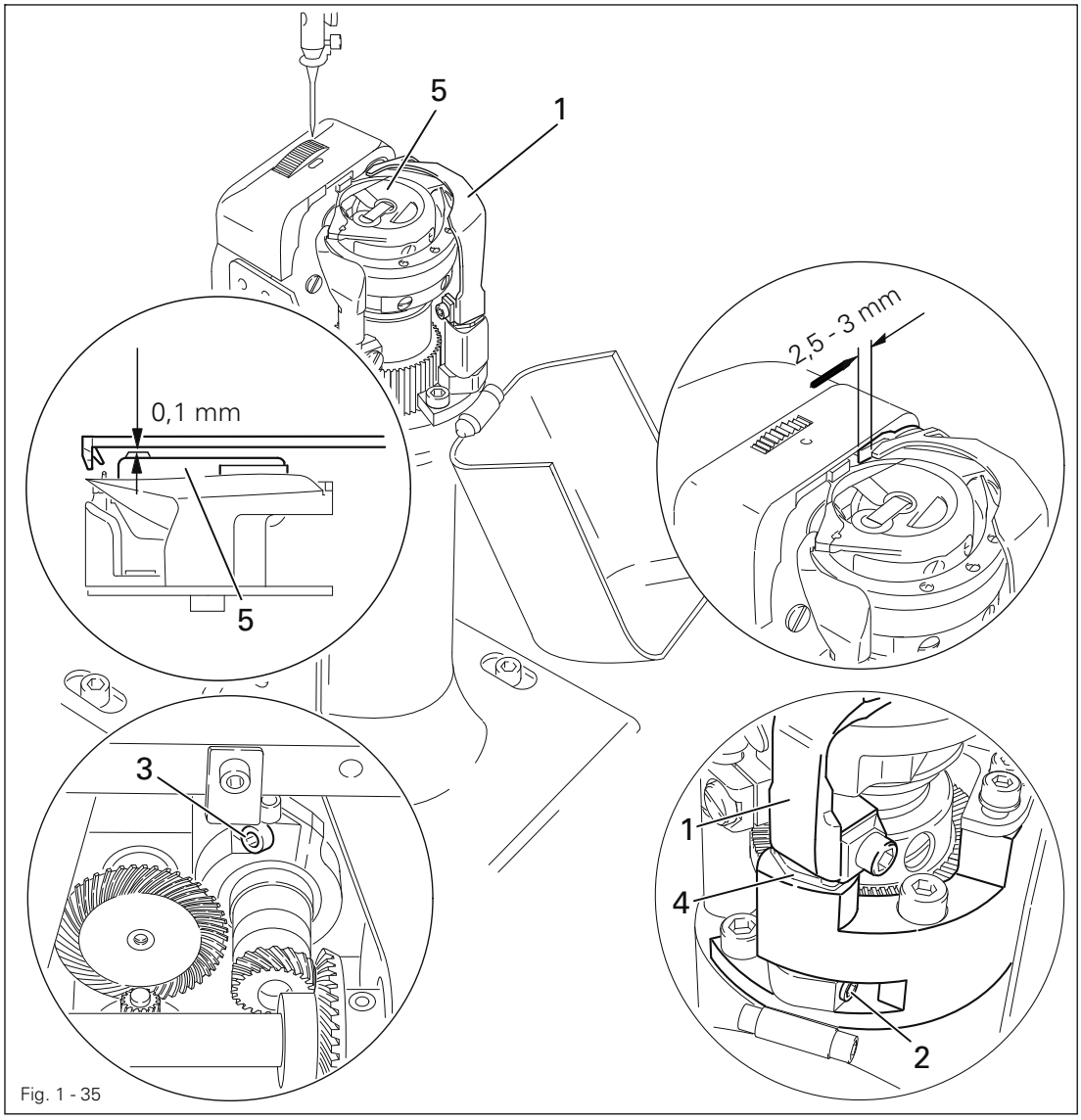



Fig. 1 - 35

- Move thread catcher **1** (screws **2**, two screws) in accordance with **requirement 1**.
- Turn thread catcher **1** (screw **3**) in accordance with **requirement 2**.

Thread catcher **1** must be parallel to the surface of the thread catcher holder **4**.

## 1.07.05 Knife position and knife pressure

**Requirement**

1. The knife **1** should be touching the needle plate.
2. The knife pressure should be set as low as possible but the cutting operation should still be carried out reliably.

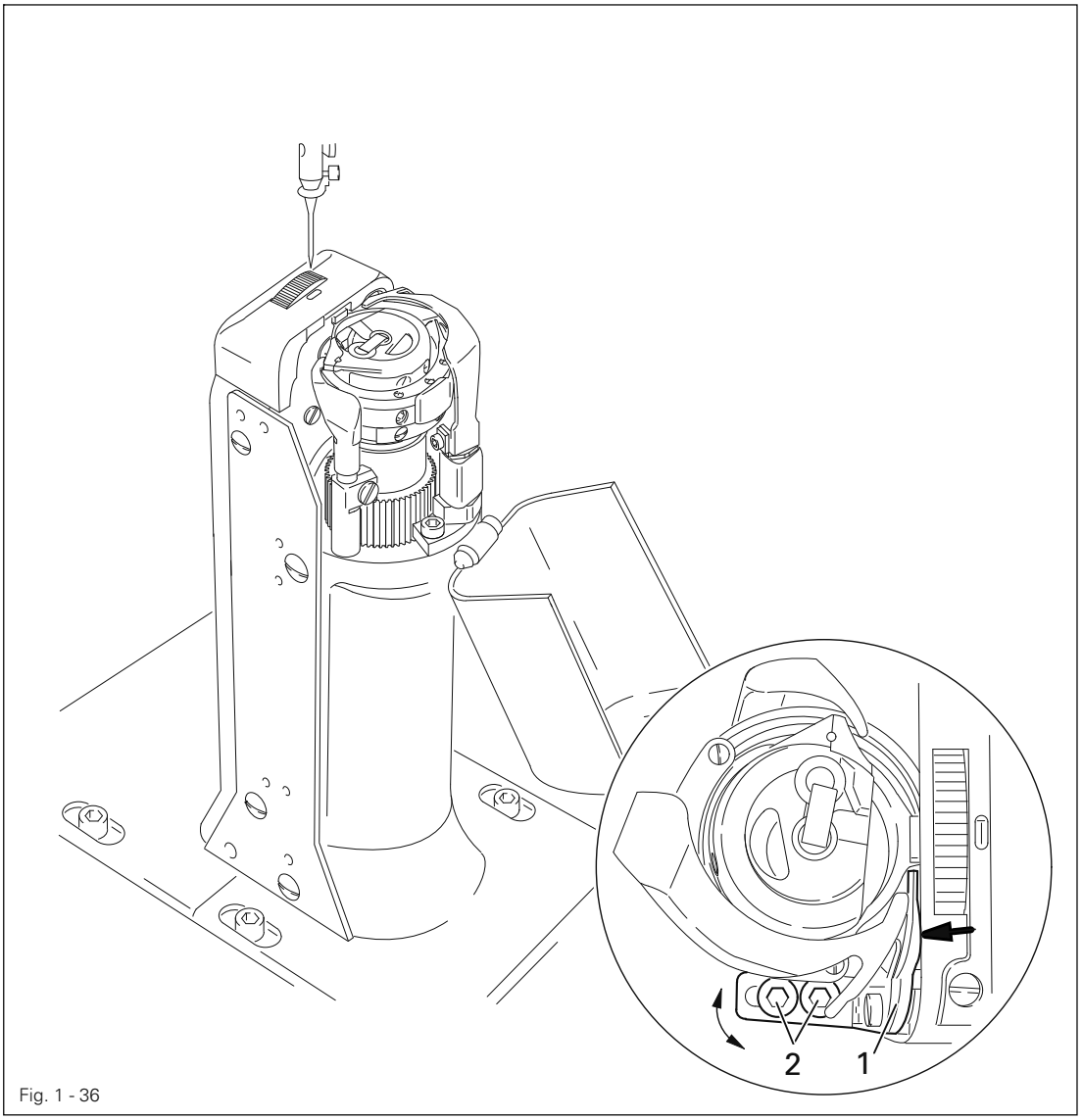
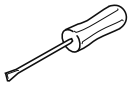



Fig. 1 - 36



- Move knife **1** (screws **2**) in accordance with **requirement 1** or swivel it in accordance with **requirement 2**.

## 1.07.06 Bobbin thread retaining spring

**Requirement**

1. The bobbin thread clamp spring should be guided reliably in the thread groove of the thread catcher 3.
2. The tension of the bobbin thread spring clamp should be as low as possible, but the bobbin thread should be held reliably after the cutting operation.

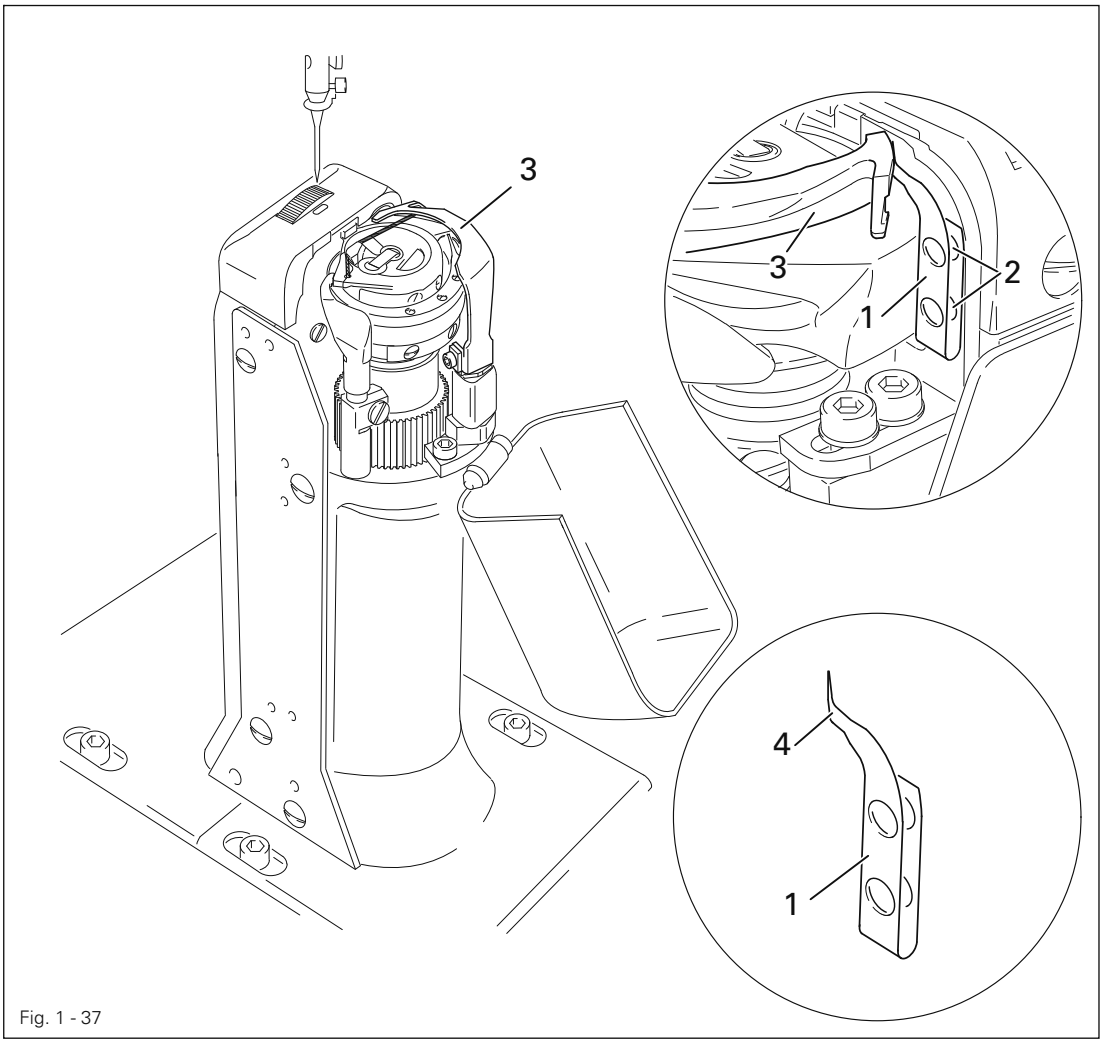
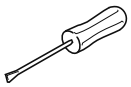



Fig. 1 - 37



- Adjust bobbin thread clamp spring **1** (screws **2**) in accordance with **requirement 1**.
- Adjust the tension in accordance with **requirement 2** by bending side **4** of the bobbin thread clamp spring **1**.

Control - requirement 1

- Switch off the machine and bring the take-up lever to its b.d.c.
- Engage and disengage the thread catcher **3** by hand and check **requirement 1**. Adjust if necessary.

Control - requirement 2

- After the thread has been cut, sew a few stitches by turning the balance wheel, checking whether the bobbin thread is drawn out of the bobbin thread clamp spring between the **1**st and **3**rd stitches. If necessary, correct the tension.

## 1.07.07 Manual cutting test

**Requirement**

1. When thread catcher **1** is on its forward stroke, it must not carry bobbin thread **3** forward too.
2. When thread catcher **1** is in its front position, bobbin thread **3** must be held reliably by hook **4**.
3. After the trimming action, both the needle thread and the bobbin thread must be perfectly cut and bobbin thread **3** retained.

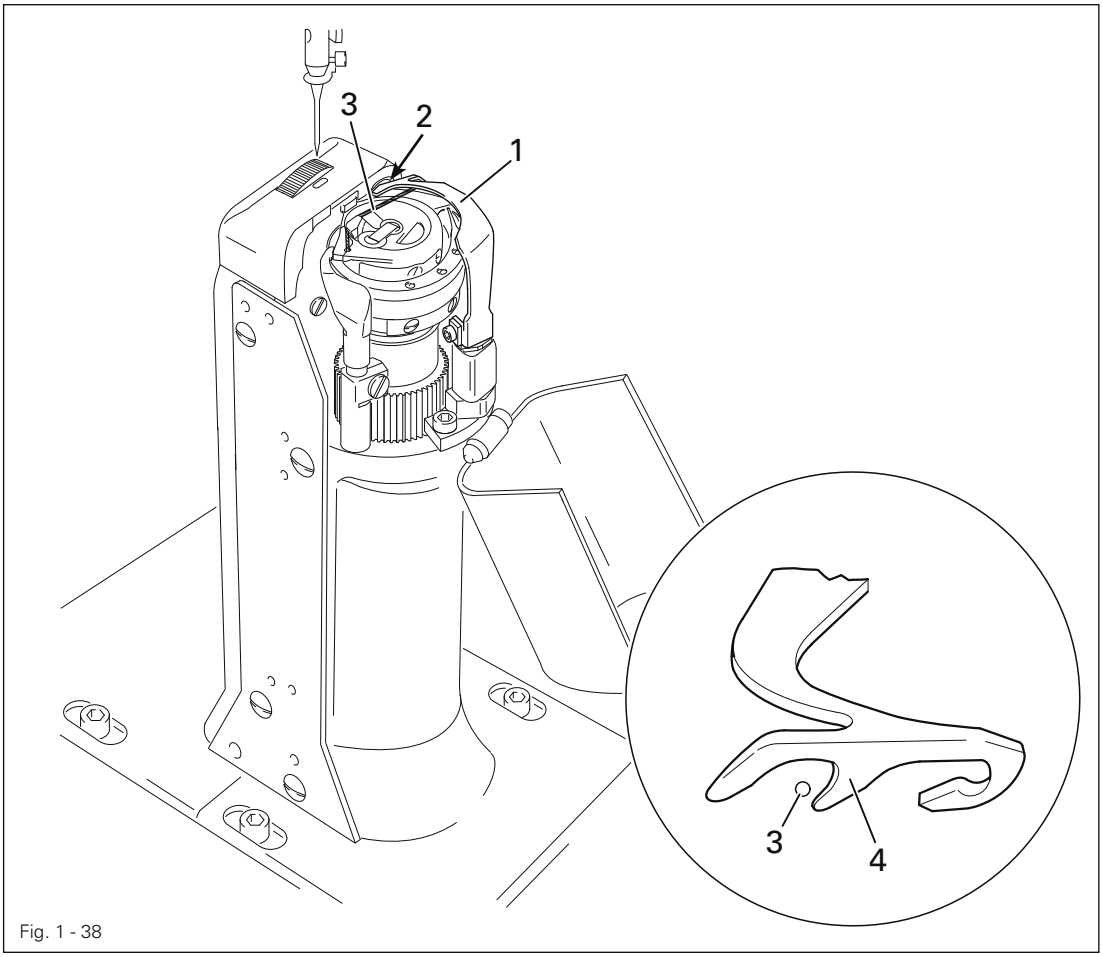
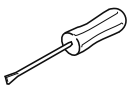



Fig. 1 - 38



- Sew a few stitches.
- Turn off the on/off switch.
- Carry out the cutting operation manually.
- Check **requirement 1** and **2**, and if necessary readjust thread catcher **1** in accordance with Chapter **1.07.04** Position of the thread catcher.
- Check **requirement 3**, and if necessary readjust the bobbin thread retaining spring **2** in accordance with Chapter **1.07.06** Bobbin thread retaining spring.

1.07.08 Linkage rod (only for the PFAFF 2574 ME)

**Requirement**
When the thread trimmer is in its resting position, the drive levers 1 must be parallel.

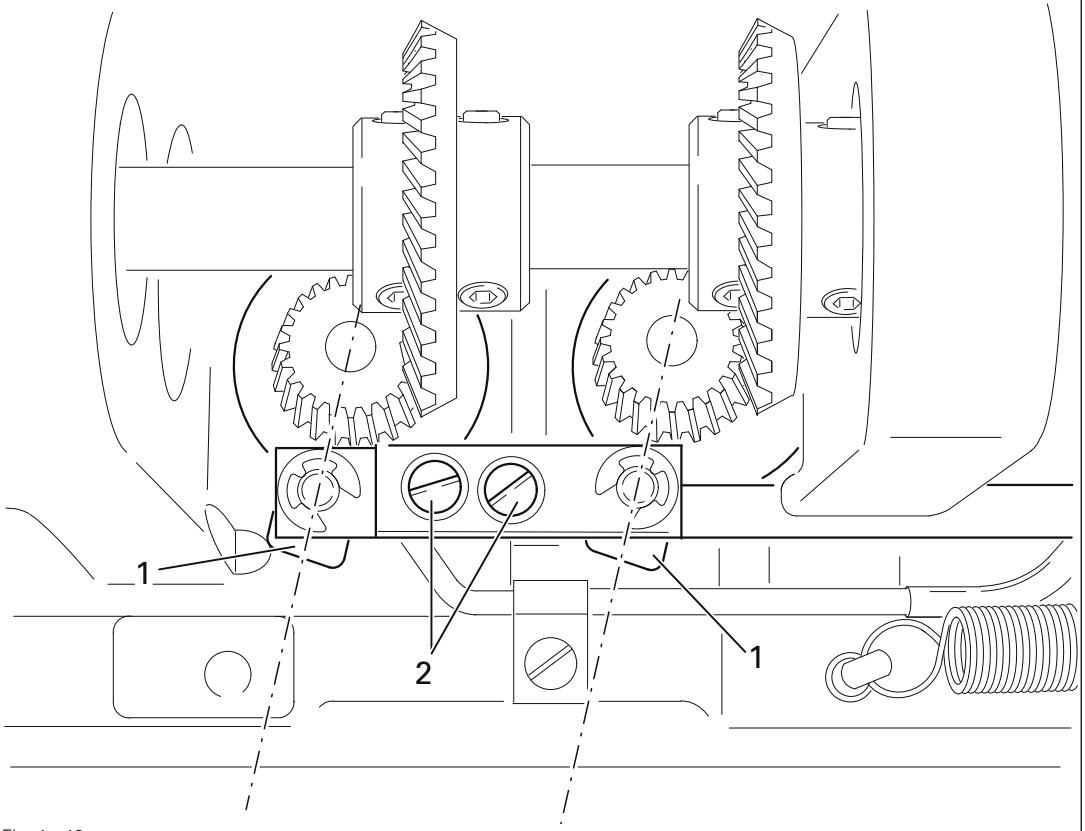
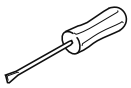



Fig. 1 - 40



- Adjust drive levers 1 (screws 2) in accordance with the requirement.

## 1.08 List of parameters for control P320 / P321

The operator has free access to the "**100**" parameters.
Parameters "**2**00" - "800" can only be changed after entering a code number and many only be changed by authorised personnel.

| Group | Parameter | Description | Setting range | Set value |
|---|---|---|---|---|
| 1 | 101 | Pedal controlled start backtack<br>(I = OFF, II = ON) | I - II | I |
| | 102 | Reverse rotation (I = OFF, II = ON) | I - II | I |
| | 103 | Placed stitch (I = OFF, II = ON) | I - II | I |
| | 104 | Bobbin thread monitoring<br>(0 = Off, 1 = Counter) | 0 - 1 | 1 |
| | 105 | Bobbin thread counter | 0 - 99999 | 12000 |
| | 106 | Bobbin thread remaining counter | 0 - 999 | 100 |
| | 108 | Display main processer software version | | |
| | 109 | Display step motor processor software version | | |
| | 110 | Display control panel software version | | |
| | 111 | Display sewing drive component software version | | |
| | 112 | Control panel key tone,<br>(I = OFF, II = ON) | I - II | II |
| | 113 | Control panel key tone when moving from one area to another,<br>(I = OFF, II = ON) | I - II | I |
| | 116 | Display serial number of machine | - | - |
| 2 | 201 | Machine configuration<br>8 = 2571, 2591,<br>9 = 2571, 2591 with photo cell,<br>10 = reserved,<br>11 = reserved,<br>12 = 2574<br>13 = 2574 with photo cell | 8 - 14 | 8 |

| Group | Parameter | Description | Setting range | Set value |
|---|---|---|---|---|
| 2 | 202 | Roller-presser field discharge (OFF = I, ON = II)<br>I = roller-presser is lowered slowly.<br>Should be set for high foot pressure<br>II = roller-presser is lowered quickly.<br>Should be set for low foot pressure | I - II | I |
| | 203 | Single stitch button assignment<br>1 = Single stitch, 2 = Needle up,<br>3 = Knee switch | 1 - 3 | 1 |
| | 204 | Half stitch button assignment<br>1 = Half stitch, 2 = Needle up,<br>3 = Knee switch | 1 - 3 | 1 |
| | 206 | Open thread tension on stop and lift roller-presser<br>(I = OFF, II = ON) | I - II | I |
| | 207 | Open thread tension after trimming and lift roller-presser<br>(I = OFF, II = ON) | I - II | I |
| | 208 | Function of "needle position change" key<br>I = needle raised without trimming<br>II = Switch to the next seam section with knee switch | I - II | I |
| 3 | 301 | Thread carrier position t.d.c. | | |
| | | 2571, 2591 | 0 - 127 | 124 |
| | | 2574 | 0 - 191 | 1 |
| | 302 | Needle position under b.d.c. | | |
| | | 2571, 2591 | 0 - 127 | 16 |
| | | 2574 | 0 - 191 | 30 |
| | 303 | Thread trimmer magnet position on | | |
| | | 2571, 2591 | 0 - 127 | 16 |
| | | 2574 | 0 - 191 | 30 |
| | 304 | Thread trimmer magnet position pulse | | |
| | | 2571, 2591 | 0 - 127 | 93 |
| | | 2574 | 0 - 191 | 83 |

| Group | Parameter | Description | Setting range | Set value |
|---|---|---|---|---|
| 3 | 305 | Thread trimmer magnet position off | | |
| | | 2571, 2591 | 0 - 127 | 113 |
| | | 2574 | 0 - 191 | 173 |
| | 306 | Reverse rotation position | | |
| | | 2571, 2591 | 0 - 127 | 93 |
| | | 2574 | 0 - 191 | 173 |
| | 307 | Placed stitch position | | |
| | | 2571, 2591 | 0 - 127 | 7 |
| | | 2574 | 0 - 191 | 7 |
| | 308 | Thread tension ventilation position | | |
| | | 2571, 2591 | 0 - 127 | 30 |
| | | 2574 | 0 - 191 | 160 |
| 4 | 401 | Time delay roller-presser lift | 0,01s - 1,5s | 0,02s |
| | 402 | Delayed start after lowering roller-presser | 0,01s - 1,5s | 0,15s |
| | 403 | Set roller-presser lift<br>(must be increased for high foot pressure) | 0,01s - 0,2s | 0,03s |
| | 404 | Thread trimmer magnet pulse | 10 -50% | 35% |
| 5 | 501 | Maximum speed | | |
| | | 2571, 2591 | 100 - 3500 | 3500 |
| | | 2574 | 100 - 2600 | 2600 |
| | 502 | Start backtack speed | 100 - 1500 | 700 |
| | 503 | End backtack speed | 100 - 1500 | 700 |
| | 504 | Soft start speed | 100 - 3500 | 1500 |
| | 505 | Soft start stitch | 0 - 15 | 0 |
| 6 | 601 | Move roller-presser and feed wheel step motor | | |

| Group | Parameter | Description | Setting range | Set value |
|---|---|---|---|---|
| 600 | 602 | Inputs: 0123456789ABCDEF<br>0 = Needle mid point (E16)<br>1 = Needle mid point (E15)<br>2 = Intermittent coding (E14)<br>3 = Free (E13)<br>4 = Free (E12)<br>5 = Free (E11)<br>6 = Free (E10)<br>7 = Free (E9)<br>8 = Emergency button (E8)<br>9 = Free (E7)<br>A = Knee switch (E6)<br>B = Photo cell (E5)<br>C = Starting inhibitor (E4)<br>D = Single stitch button on machine head (E3)<br>E = Half stitch button on machine head (E2)<br>F = Reverse button on machine head (E1) | | |
| | 603 | Machine drive in home position see set-up-instructions | 0 - 127 | 8 ± 2 |
| | 604 | Run cold start | | |
| | 605 | Stitch process with step motors by handwheel | | |
| | 606 | Display speed control unit value | | |
| 7 | 701 | P-section speed regulator | | |
| | | 2571, 2591 | 1 - 50 | 30 |
| | | 2574 | 1 - 50 | 20 |
| | 702 | I-section speed regulator | 0 - 100 | 50 |
| | 703 | P-section position regulator | 1 - 50 | 20 |
| | 704 | D-section position regulator | 1 - 100 | 30 |
| | 705 | Time for position regulator | 0 - 100 | 25 |
| | 706 | P-section position regulator for remainder brake | 1 - 50 | 25 |
| | 707 | D-section position regulator for remainder brake | 1 - 50 | 15 |
| | 708 | Maximum torque for remainder brake | 0 - 100 | 0 |
| | 709 | Minimum machine speed | 3 - 64 | 6 |

| Group | Parameter | Description | Setting range | Set value |
|---|---|---|---|---|
| 700 | 710 | Maximum machine speed | | |
| | | 2571, 2591 | 1 - 35 | 35 |
| | | 2574 | 1 - 26 | 26 |
| | 711 | Maximum motor speed | | |
| | | 2571, 2591 | 1 - 35 | 35 |
| | | 2574 | 1 - 40 | 40 |
| | 712 | Positioning speed | 3 - 25 | 18 |
| | 713 | Acceleration ramp | 1 - 50 | 35 |
| | 714 | Braking ramp | 1 - 50 | 30 |
| | 715 | Reference position | | |
| | | 2571, 2591 | 0 - 127 | 10 |
| | | 2574 | 0 - 191 | 35 |
| | 716 | Dead man time | 0 - 255 | 40 |
| | 717 | Motor starting current | 3 -10 | 8 |
| | 718 | Vibration filter | 1 -10 | 6 |
| | 719 | Assign direction of rotation | 0 - 1 | 0 |
| | 720 | Move positioner | 1 - 2 | 2 |
| 800 | 801 | Function group 100 access authorisation (Operator level) | 0 - 1 | 0 |
| | 802 | Function group 200 access authorisation (Technician level) | 0 - 1 | 1 |
| | 803 | Function group 300 access authorisation (Sewing motor positions) | 0 - 1 | 1 |
| | 804 | Function group 400 access authorisation (Times) | 0 - 1 | 1 |
| | 805 | Function group 500 access authorisation (Counter and revolution speed) | 0 - 1 | 1 |
| | 806 | Function group 600 access authorisation (Service) | 0 - 1 | 1 |
| | 807 | Function group 700 access authorisation (Sewing motor) | 0 - 1 | 1 |
| | 808 | Function group 800 access authorisation (Access authorisation) | 0 - 1 | 1 |
| | 809 | Programming access authorisation | 0 - 1 | 1 |
| | 810 | Input access code | 0 - 9999 | 2500 |

## 1.09 Error Messages and Description

| Error | Description |
|---|---|
| E 1 | System error |
| E 2 | Sewing motor E002/BB/xxx<br>BB = 20: Deadman<br>02: Position forwards<br>03: Position in reverse<br>05: Position by shortest route<br>09: Write parameter<br>10: Speed<br>0A: Reset stitch counter<br>0B: Stop after xxx stitches<br>30: Timeout for increasing speed<br>31: Timeout from uncertain positioning<br>32: Timeout from deadman command<br>33: Timeout for deleting errors<br>34: Timeout for emergency stop<br>35: Timeout for writing parameters<br>36: Timeout for resetting stitch counter<br>37: Timeout for stop command after x stitches<br>38: Timeout for initialisation<br>39: Establishing contact when turned on<br>xxx = sewing motor control unit error byte (see Motor Errors) |
| E 3 | Section |
| E 4 | End of section |
| E 5 | Pedal or half stitch button or single stitch button (on machine head) activated when machine turned on |
| E 6 | Communication error with the step motor processor |
| E 7 | End of ramp |
| E 8 | Needle drive end point not found |
| E 9 | Needle drive mid-point not found |
| E 10 | Step motor processor error |
| E 11 | Step motor step frequency too high |
| E 12 | Sewing displacement error |
| E 13 | Docu-seam system error |
| E 14 | Incorrect program number (larger than 99) |
| E 15 | Incorrect section number |
| E 16 | Memory full |
| E 17 | Incorrect stitch length |
| E 18 | Unused |
| E 19 | External control interface |
| E 20 | Incorrect control |
| E 21 | Power supply unit overloaded (24V) |
| E 22 | Mains voltage |
| E 23 | Power supply 24V too low |

| Error | Description |
|---|---|
| | Error in SD-memory card reader |
| Error 27 - 1 | No SD-memory card inserted |
| Error 27 - 2 | Wrong card (does not match the machine) |
| Error 27 - 3 | Card not inserted correctly |
| Error 27 - 4 | Card with write protection |
| Error 27 - 5 | Data error on SD-memory card |
| Error 27 - 6 | Formatting failed |
| Error 27 - 7 | File does not match the machine |
| Error 27 - 8 | Incorrect file size |
| Error 27 - 9 | Transfer error |
| Error 27 - 10 | Data could not be deleted |

## 1.10 Motor Errors

| Error | Description |
|---|---|
| 33 | Invalid parameter value |
| 35 | Communication error |
| 36 | Init not ready |
| 37 | Command overrun |
| 64 | Mains off during initialisation |
| 65 | Excess current directly after mains on |
| 66 | Short circuit |
| 68 | Excess current during operation |
| 70 | Motor blocked |
| 71 | No incremental plug |
| 74 | Incremental transducer missing for transmission/reduction |
| 173 | Motor blocked in 1st stitch |
| 175 | Interior starting error |
| 222 | Dead man monitoring |

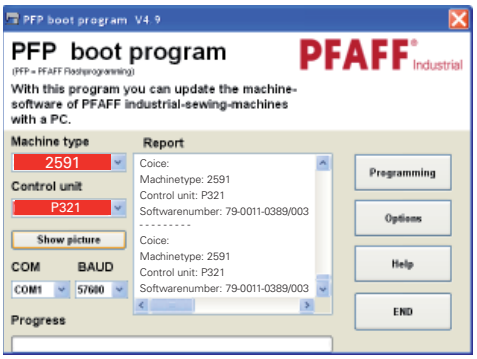
## 1.11 Updating the machine software via internet

The machine software can be updated with PFAFF flash programming. For this purpose the PFP boot program (from **version 3.25** on) and the appropriate control software for the machine type must be installed on a PC. The transfer of the data to the machine can be carried out with a null modem cable (part no. **91-291 998-91**) or with an SD-card. The SD-card must be formatted in the **FAT16** format and must not exceed a capacity of **2 GBytes**.

The PFP boot program and the control software of the machine type can be downloaded from the PFAFF-homepage using the following path:
**www.pfaff-industrial.de/pfaff/de/partnerweb/downloadsoftware**

### 1.11.01 Updating with null modem cable

- After downloading the PFP tool and the control software, open the PFP program.
- Select the **machine type** and under control unit **P321**.
- The software version is displayed under **report**.



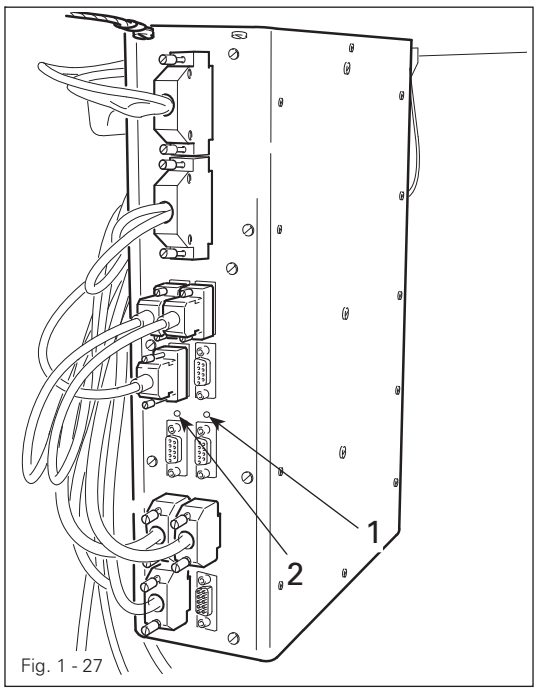



Fig. 1 - 27

- Switch off the machine.
- Connect the PC (serial interface or appropriate USB-adapter) and the machine control unit (**RS232**). To do so disconnect the plug of the control panel.

While the machine software is being updated, no setting up, maintenance or adjustment work may be carried out on the machine!

- Depending on which software is to be up-dated, hold down boot key **1** or **2** and switch on the machine.
  - **1** = for machine controller
  - **2** = for stepping motors

- Press the "OK" button.

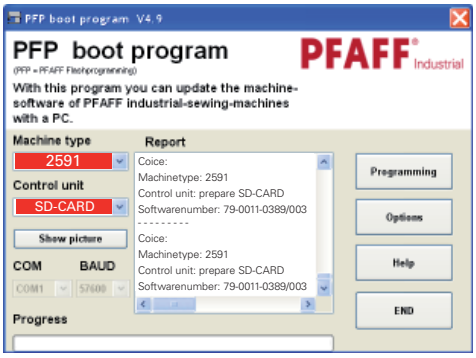
The software update is carried out, the update progress is shown on the bar display of the PFP boot program.

- During the up-dating procedure the machine must not be switched off.
- When the update has been completed, switch off the machine and end the PFP boot program.
- End the connection between the PC and the machine control unit and reconnect the control panel to the machine control unit.
- Switch on the machine.
  A plausibility control is carried out and, if necessary, a cold start.

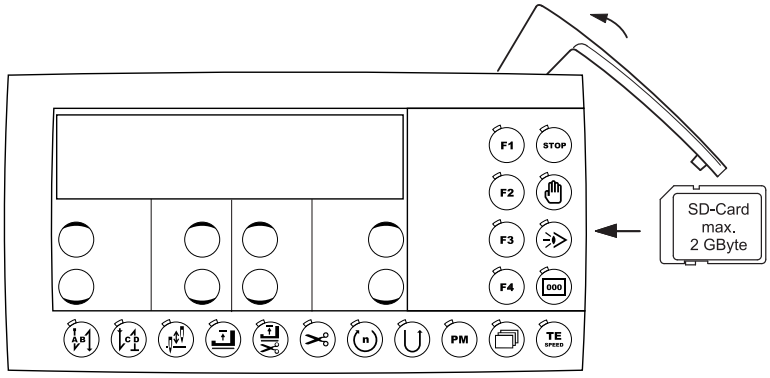
More information and assistance is at your disposal in the file "PFPHILFE.TXT", which can be called up from the PFP boot program by pressing the "help" button.

## 1.11.02 Updating with SD card

- After downloading the PFP tool and the control software, open the PFP program.
- Select the machine type and under control unit SD-CARD.
- The software version is displayed under report.




- Under **programming** copy the software to the drive with the SD-card.
- With the machine switched off insert the SD-card into the control panel.




To update the machine software carry out the following steps:

While the machine software is being updated, no setting up, maintenance or adjustment work may be carried out on the machine!

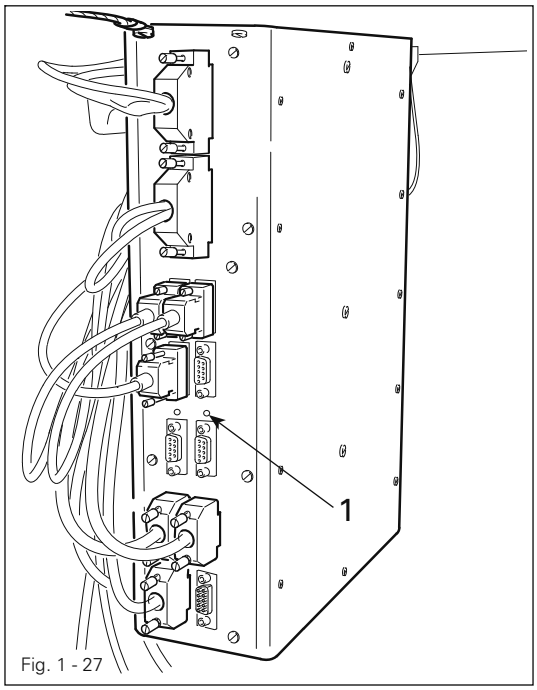


Fig. 1 - 27

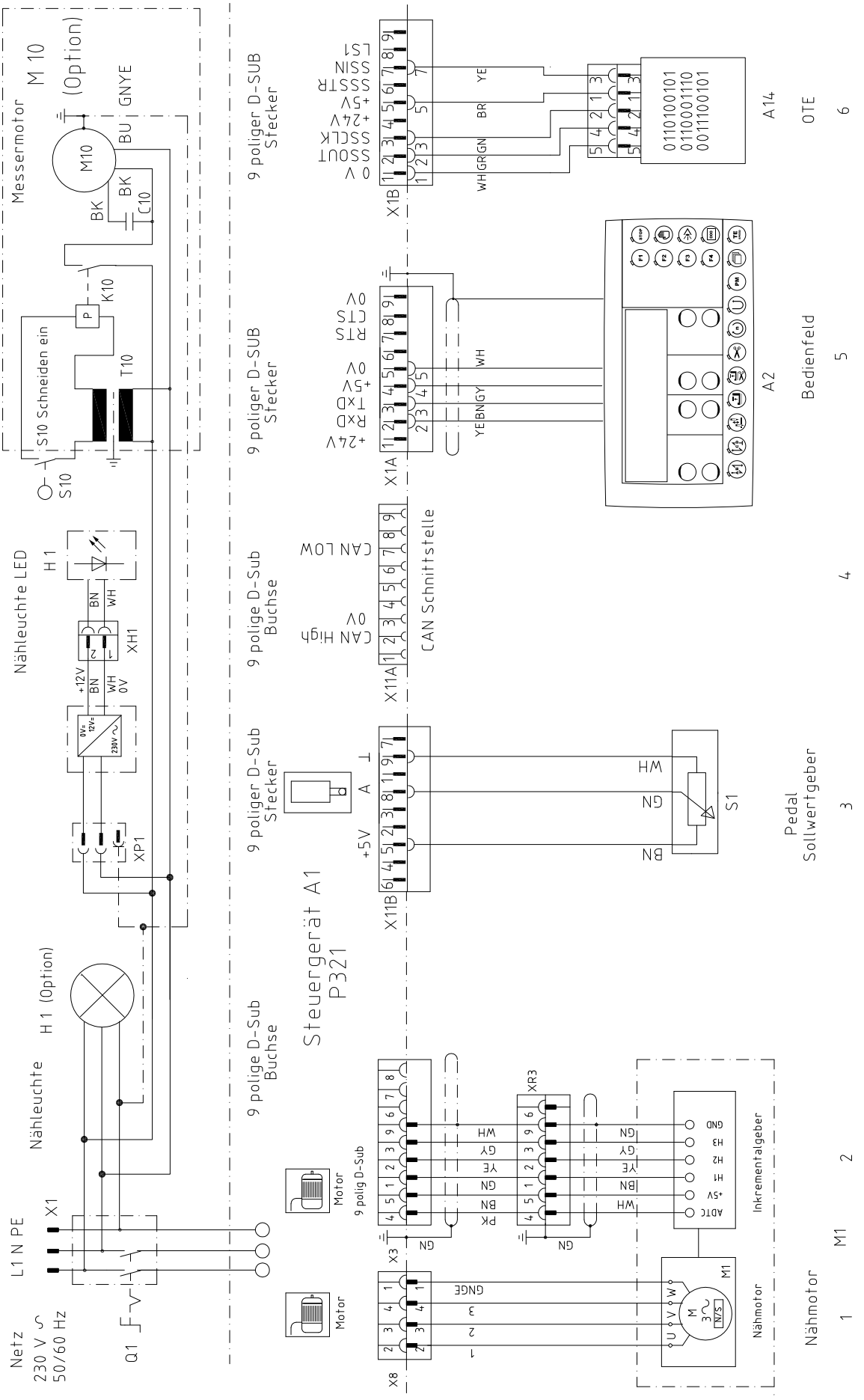
- witch on the machine, keeping the boot key **1** pressed.
- Press the "TE" key.
  The software update is carried out. During the updating process the diode in the memory card slot flashes.
- During the updating process the machine must not be switched off.
- When the update has been completed, switch off the machine and remove the SD-card.
- Switch on the machine
- A plausibility control is carried out and, if necessary, a cold start.
- To update the step motor software please contact your PFAFF representative.

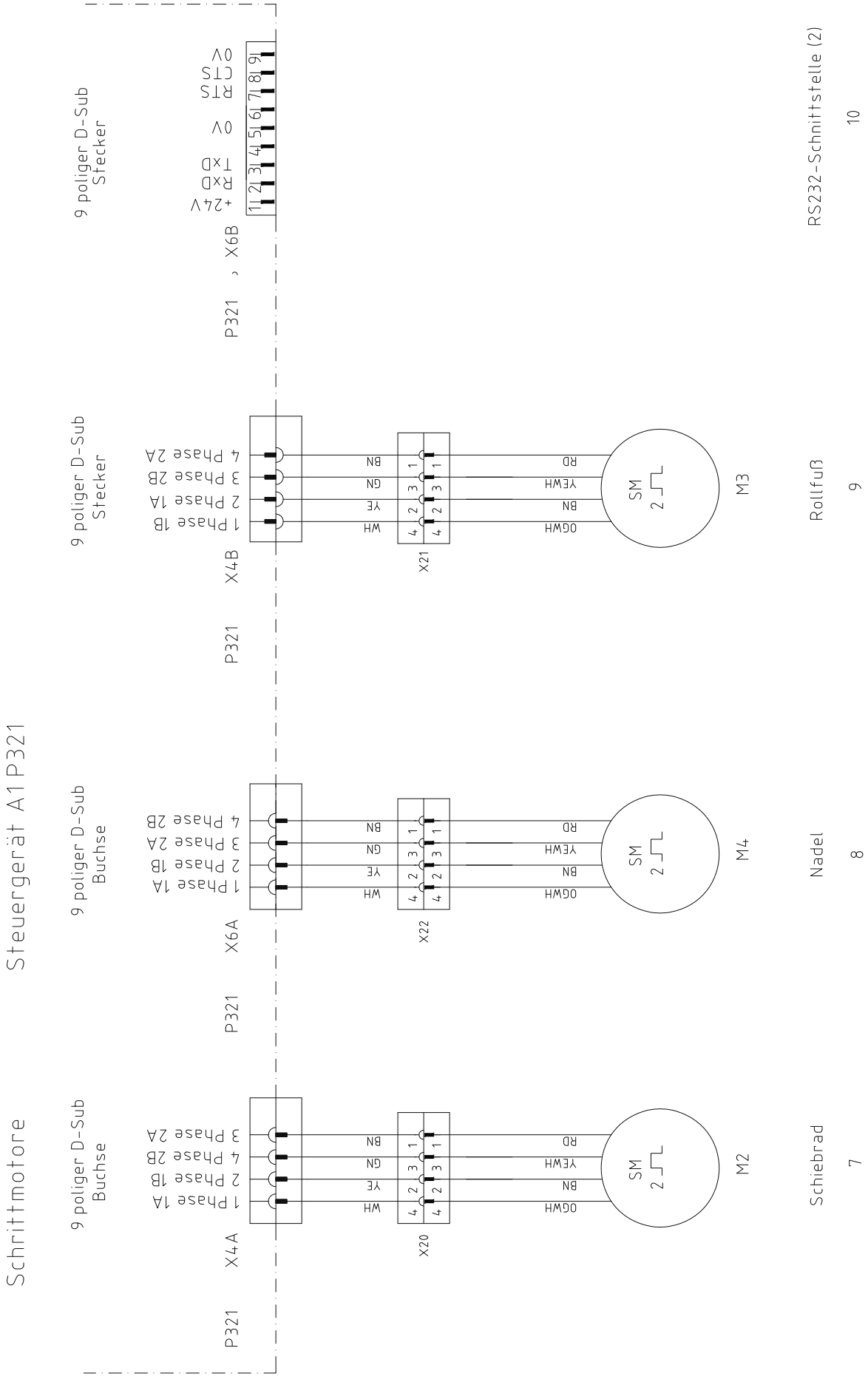
More information and assistance is at your disposal in the file "PFPHILFE.TXT", which can be called up from the PFP boot program by pressing the "help" button.

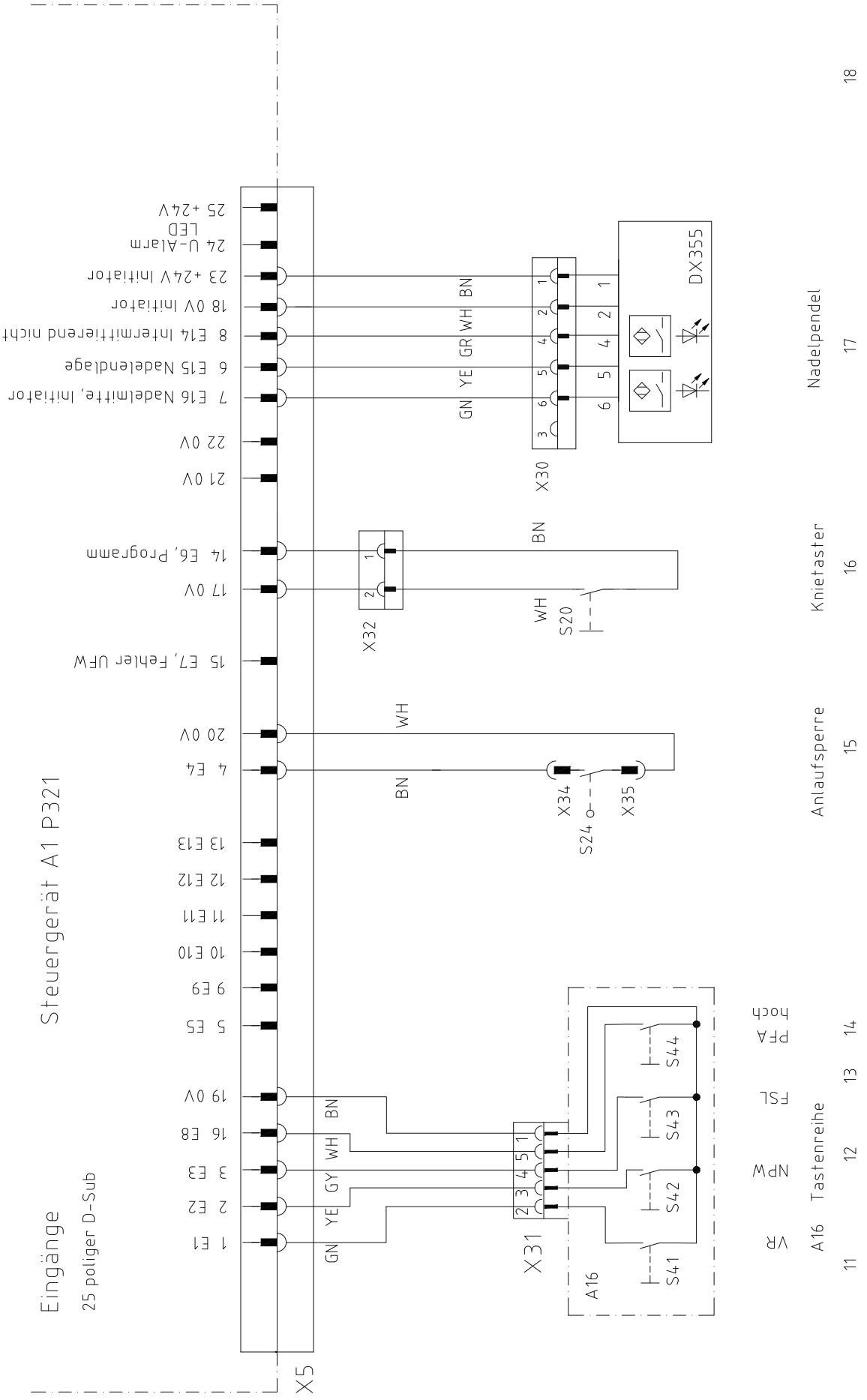
## 2 Circuit diagrams

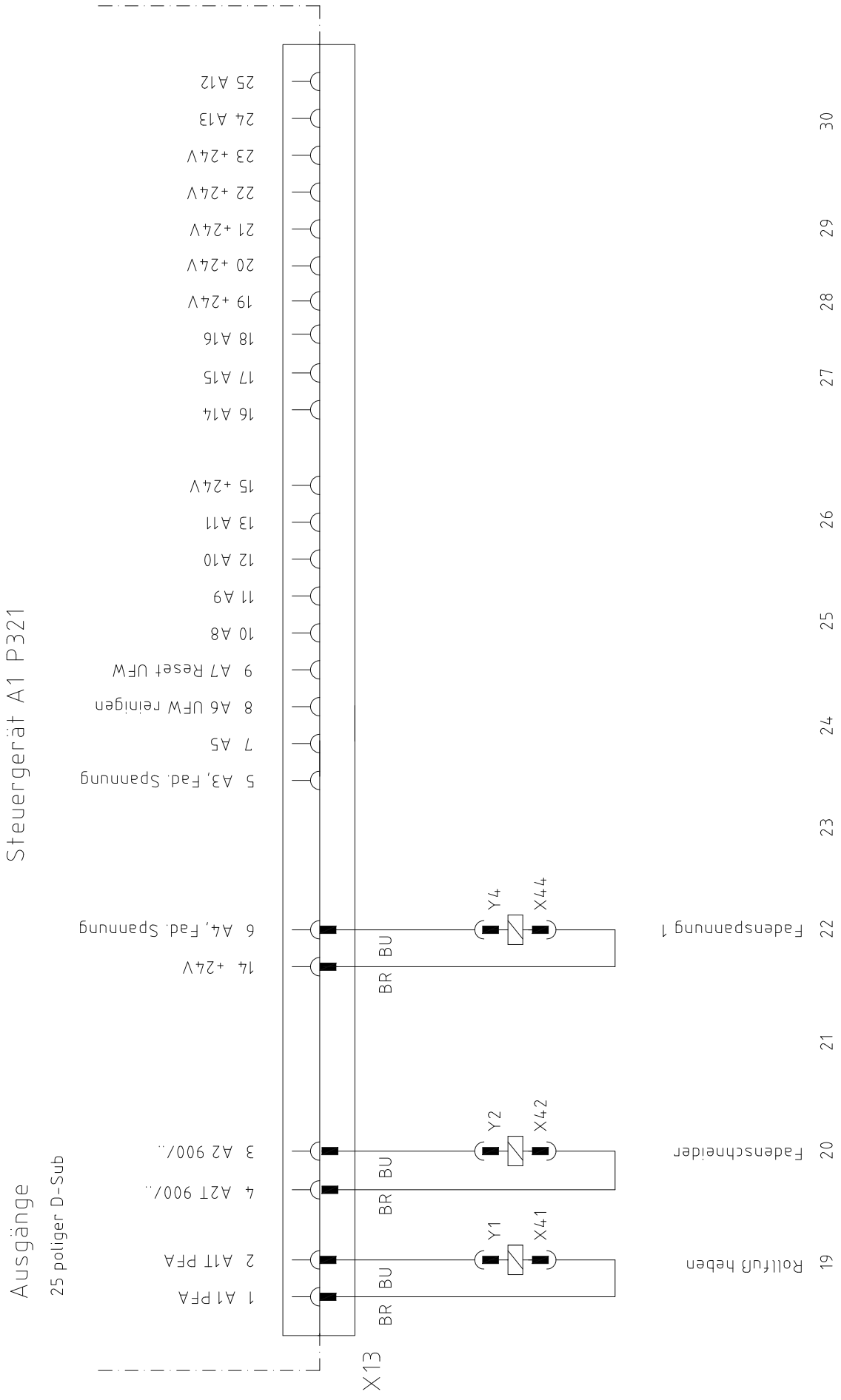
Reference list for the Circuit diagrams 91-191 559-95

| | |
|---|---|
| A1 | PFAFF P 320 / P 321ED Control Device |
| A2 | BDF S3 Control Panel |
| A14 | OTE (Sewing Head Auto Select) |
| C10 | Capacitor for knife drive |
| DX355 | Needle pendulum |
| | |
| H1 | Sewing lamp |
| K10 | Relay for knife drive |
| M1 | Sewing motor |
| | |
| M2 | Feed wheel step motor |
| M3 | Roller-presser step motor |
| M4 | Needle step motor |
| M10 | Motor edge trimmer |
| Q1 | Main switch |
| S1 | Treadle speed control unit |
| S10 | Switch for edge trimmer |
| S20 | Knee switch |
| S24 | Starting inhibitor button |
| S41 | Hand operation front button |
| S42 | Single stitch button (change needle position) |
| S43 | Thread tension release (FSL) |
| S44 | Automatic presser foot lift (PFA) |
| T10 | Transformer knife drive |
| X1 | Mains plug |
| X1A | RS232 – control panel interface 1 |
| X1B | VSS OTE |
| X3 | Incremental encoder (sewing motor) |
| X4A | Feed wheel step motor |
| X4B | Roller-presser step motor |
| X5 | Inputs |
| X6A | Needle step motor |
| X6B | RS232 – interface |
| X8 | Sewing motor |
| X11A | CAN interface |
| X11B | Treadle speed control unit |
| X13 | Outputs |
| | |
| Y1 | -910/.. PFA |
| Y2 | -900/.. Thread trimmer |
| Y3 | Thread tension release |


Messermotor M 10 (Option)
S10 Schneiden ein
K10
T10
C10
M10
BK
BU GNYE
Nähleuchte LED H 1
XH1
XP1
+12V
0V
BN
WH
Nähleuchte H 1 (Option)
X1
L1 N PE
Netz 230 V 50/60 Hz
Q1
9 poliger D-SUB Stecker
9 polige D-Sub Buchse
9 poliger D-Sub Stecker
9 polige D-Sub Buchse
Steuergerät A1 P321
X1B
X1A
X11A
X11B
X8
X3
XR3
CAN Schnittstelle
CAN High
CAN LOW
+5V
A
Motor
9 polig D-Sub
GN
YE
GY
WH
PK
GNGE
S1
A2
A14
Bedienfeld
OTE
Pedal Sollwertgeber
Nähmotor
M1
Inkrementalgeber
ADTC
GND
1 2 3 4 5 6


Steuergerät A1 P321
Schrittmotore
9 poliger D-Sub Buchse
9 poliger D-Sub Stecker
P321
X4A
X6A
X4B
X6B
X20
X22
X21
1 Phase 1A
2 Phase 1B
3 Phase 2A
4 Phase 2B
+24V
RxD
TxD
0V
RTS
CTS
0V
WH
YE
GN
BN
YEWH
OGWH
RD
SM
2
M2
M4
M3
Schiebrad
Nadel
Rollfuß
RS232-Schnittstelle (2)
7
8
9
10


Steuergerät A1 P321
Eingänge
25 poliger D-Sub
X5
1 E1
2 E2
3 E3
16 E8
19 0V
5 E5
9 E9
10 E10
11 E11
12 E12
13 E13
4 E4
20 0V
15 E7, Fehler UFW
17 0V
14 E6, Programm
21 0V
22 0V
7 E16 Nadelmitte, Initiator
6 E15 Nadellendlage
8 E14 Intermittierend nicht
18 0V Initiator
23 +24V Initiator
24 U-Alarm LED
25 +24V
GN YE GR WH BN
X30
DX355
BN
WH
X32
S20
WH
BN
X34
S24
X35
Anlaufsperre
Knietaster
Nadelpendel
GN YE GY WH BN
X31
A16
S41
S42
S43
S44
VR
NPW
FSL
PFA hoch
A16 Tastenreihe
11 12 13 14 15 16 17 18


Steuergerät A1 P321
Ausgänge
25 poliger D-Sub
X13
1 A1 PFA
2 A11 PFA
3 A2 900/..
4 A21 900/..
5 A3, Fad. Spannung
6 A4, Fad. Spannung
7 A5
8 A6 UFW reinigen
9 A7 Reset UFW
10 A8
11 A9
12 A10
13 A11
14 +24V
15 +24V
16 A14
17 A15
18 A16
19 +24V
20 +24V
21 +24V
22 +24V
23 +24V
24 A13
25 A12
BR BU
BR BU
BR BU
Y1
Y2
Y4
X41
X42
X44
Rolfuß heben
Fadenschneider
Fadenspannung 1
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